US007438269B2

(12) **United States Patent**
Pfister et al.

(10) **Patent No.: US 7,438,269 B2**
(45) **Date of Patent: Oct. 21, 2008**

(54) **ADJUSTABLE TILT MOUNT**

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(73) Assignee: **CSAV, Inc.**, Savage, MN (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **11/647,756**

(22) Filed: **Dec. 29, 2006**

(65) **Prior Publication Data**

US 2007/0194196 A1 Aug. 23, 2007

Related U.S. Application Data

(63) Continuation of application No. 11/194,298, filed on Aug. 1, 2005, now Pat. No. 7,178,775, which is a continuation of application No. 10/455,624, filed on Jun. 6, 2003, now Pat. No. 7,152,836.

(60) Provisional application No. 60/438,889, filed on Jan. 9, 2003.

(51) **Int. Cl.**
E04G 3/00 (2006.01)

(52) **U.S. Cl.** **248/292.14**; 248/299.1; 248/920; 248/923

(58) **Field of Classification Search** 248/292.14, 248/299.1, 289.11, 298.1, 919–923, 274.1; 361/681–683; 345/654, 659; 403/59, 62, 403/65, 87, 101, 113, 116, 117
See application file for complete search history.

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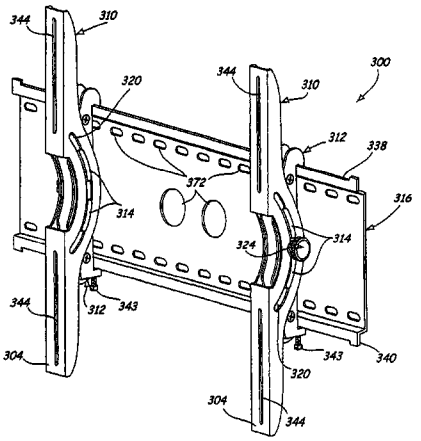
(57) **ABSTRACT**

A mounting system for an interface such as a flat panel display such as a computer monitor or television allows the display to be pivoted about a virtual pivot axis which passes through a center of gravity of the display. The system includes a support which is connected directly or indirectly to a support surface and a mount which is connected to a back side of the display. The support and the mount are slidable with respect to one another through an arc which has the virtual pivot axis as its center.

19 Claims, 37 Drawing Sheets



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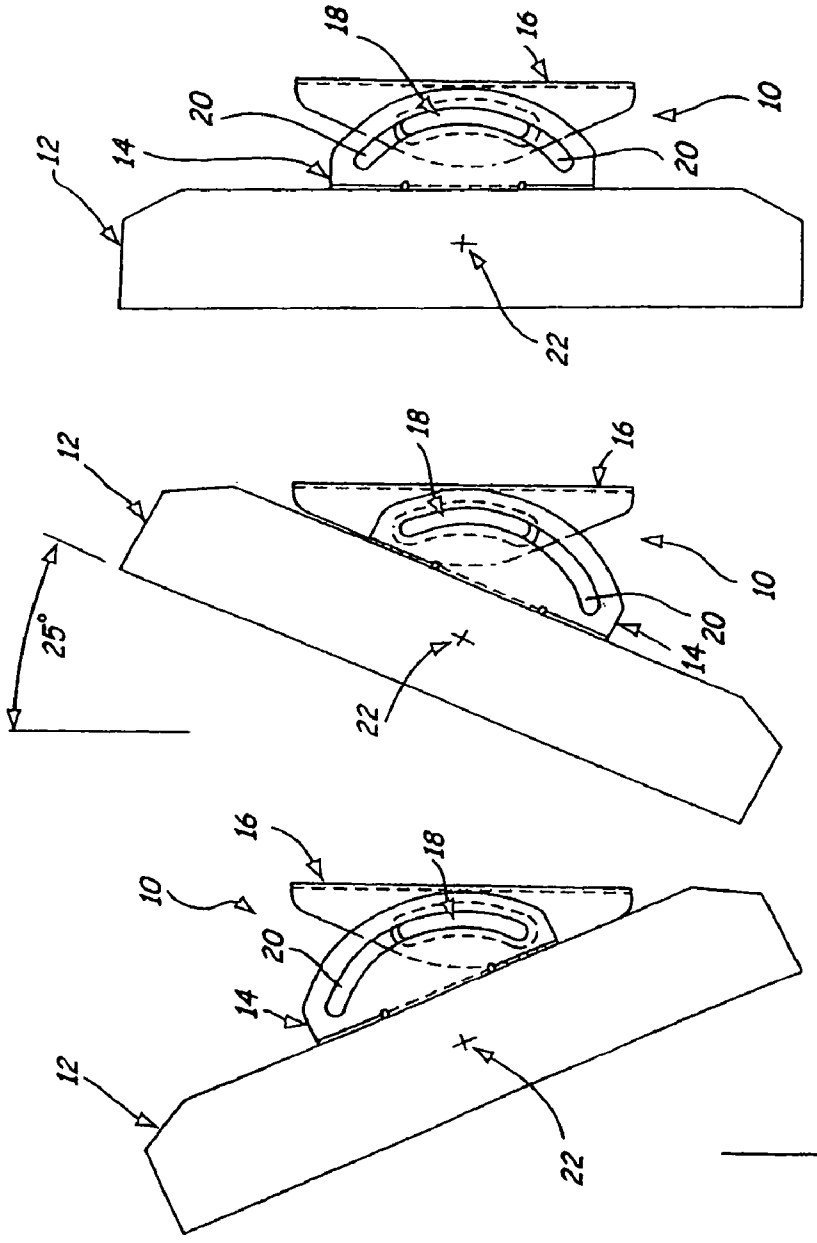
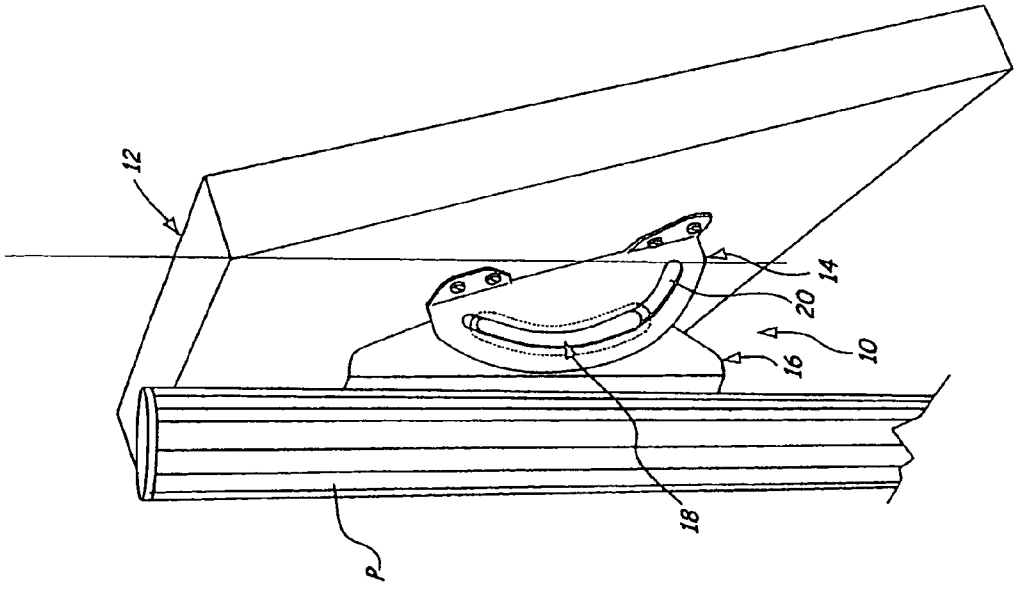


FIG. 1C

FIG. 1B

FIG. 1A

FIG. 1D



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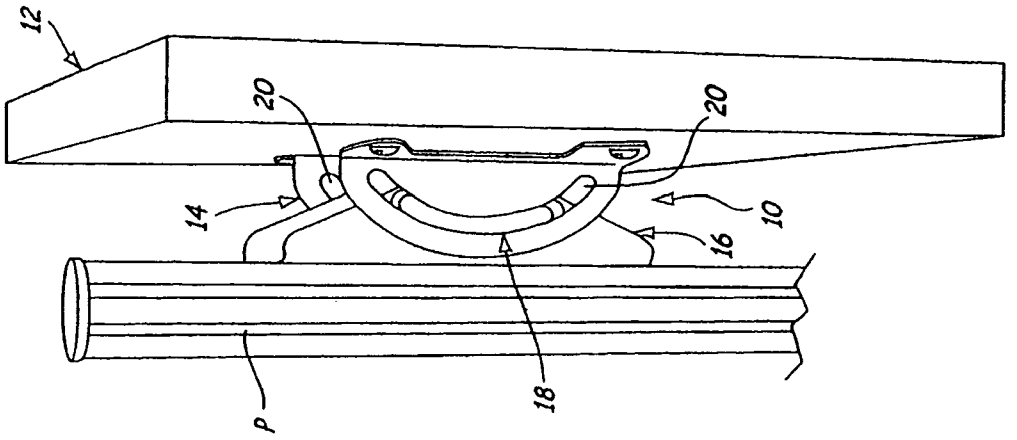

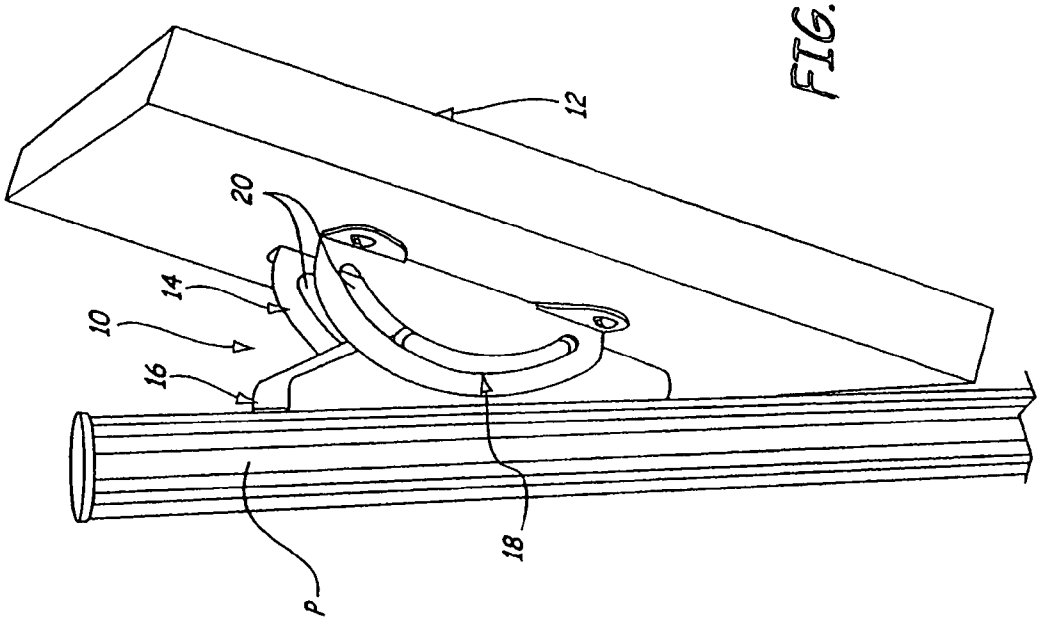

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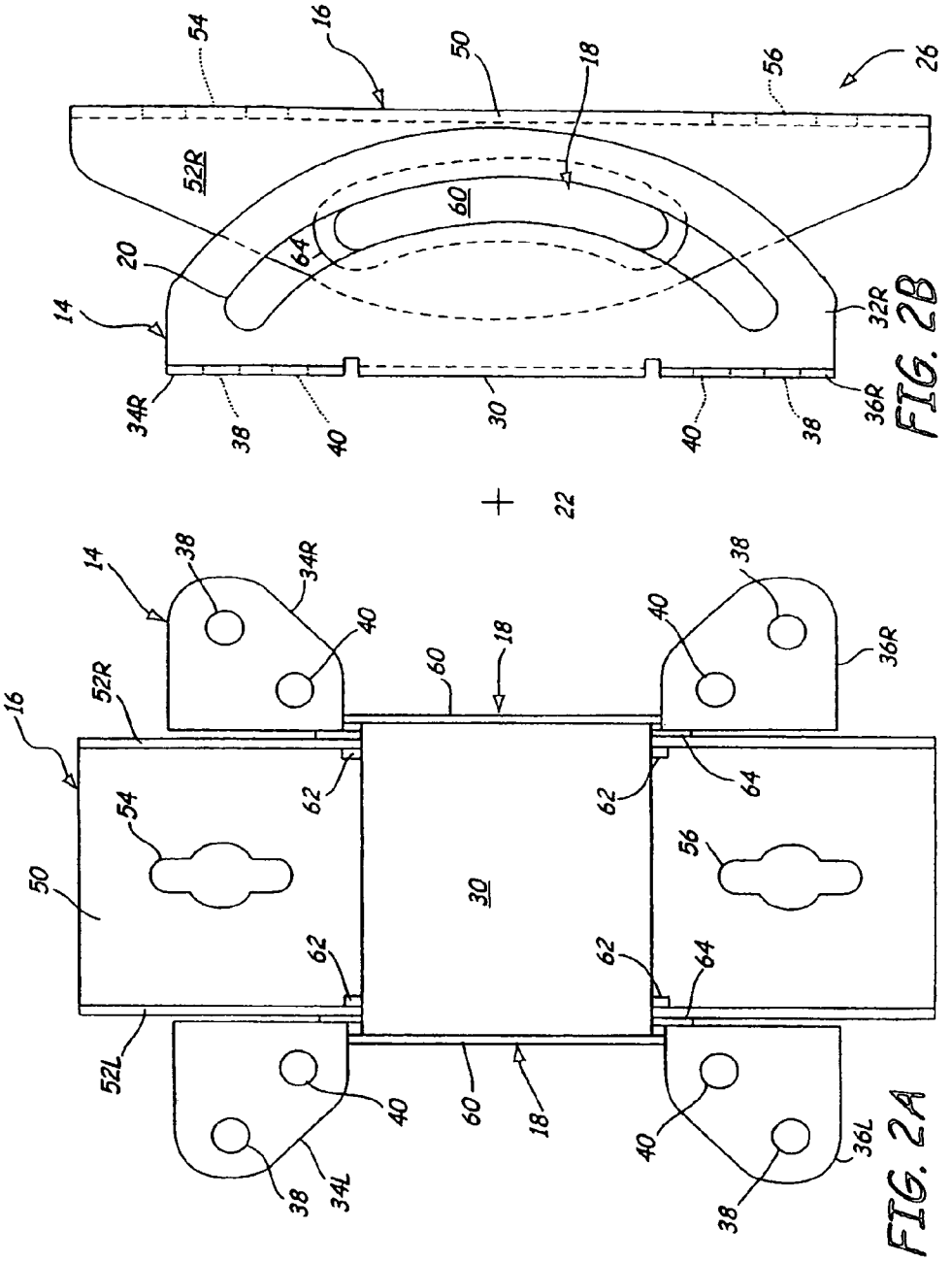
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34R
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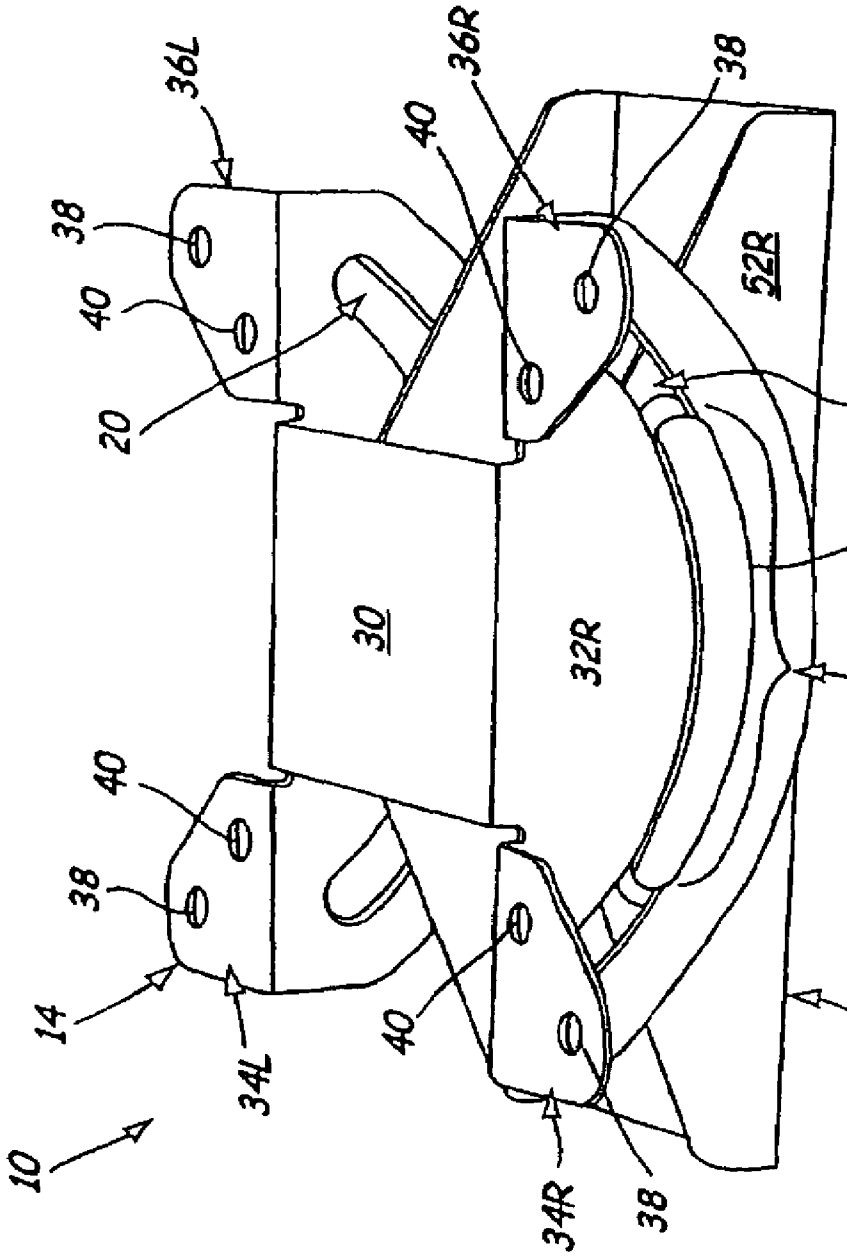
FIG. 2B

FIG. 2A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16
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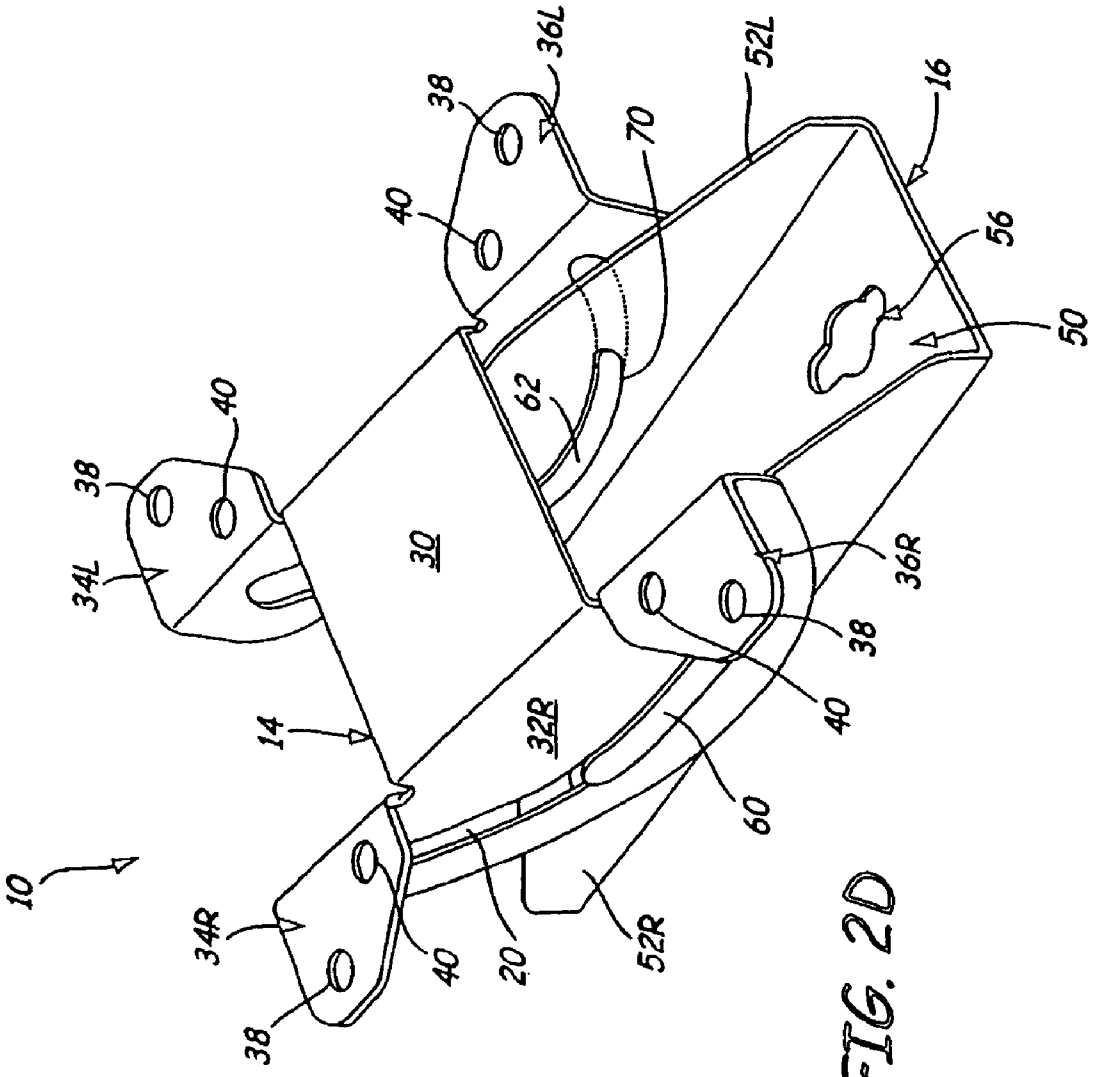
34R
38

FIG. 2C



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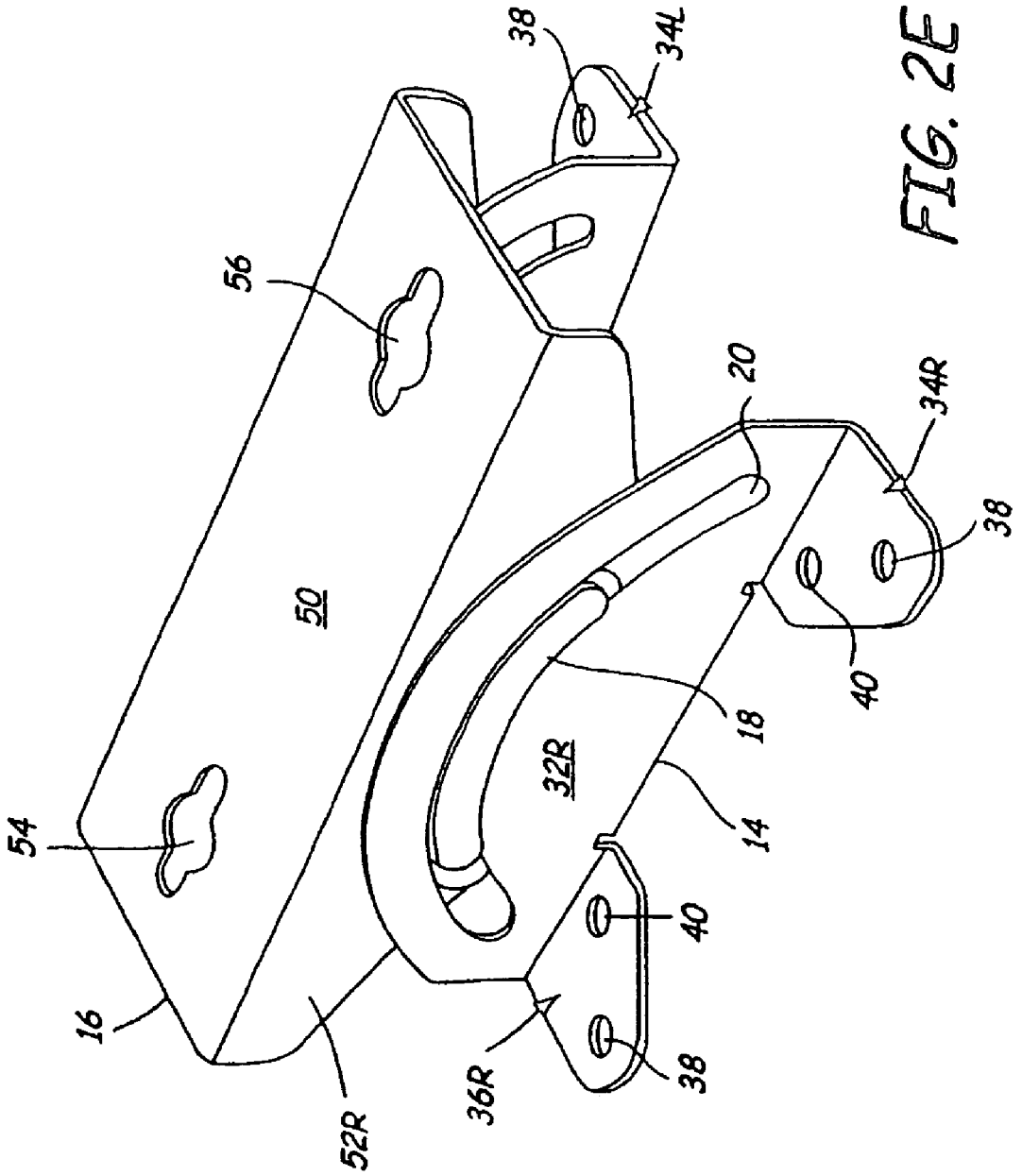


FIG. 2E

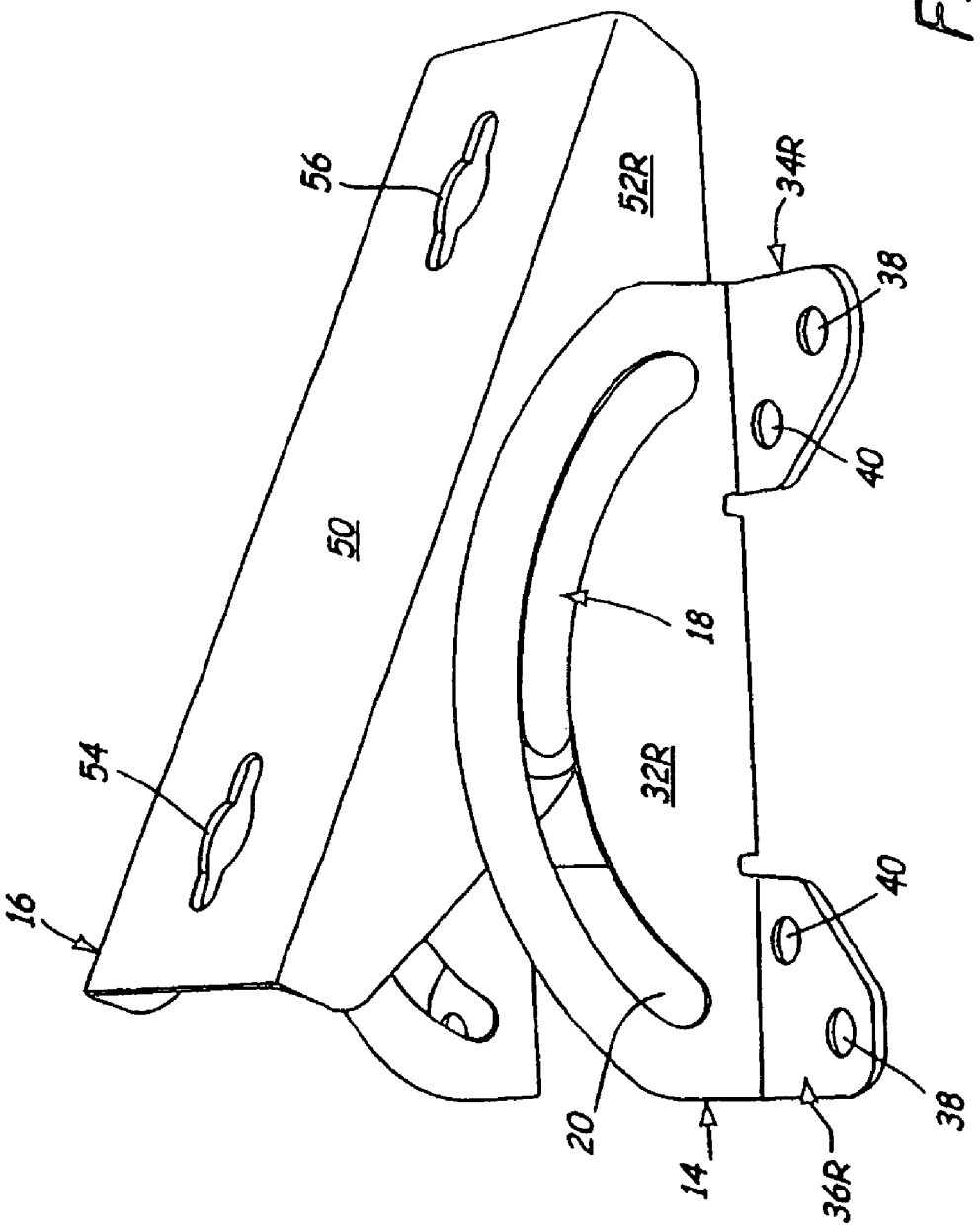


FIG. 2F

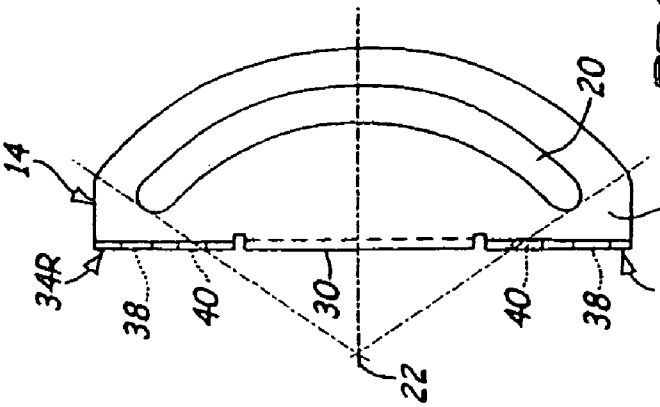


FIG. 3B

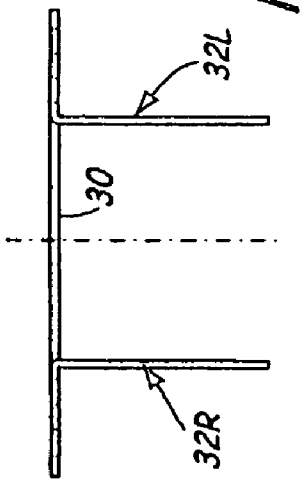


FIG. 3C

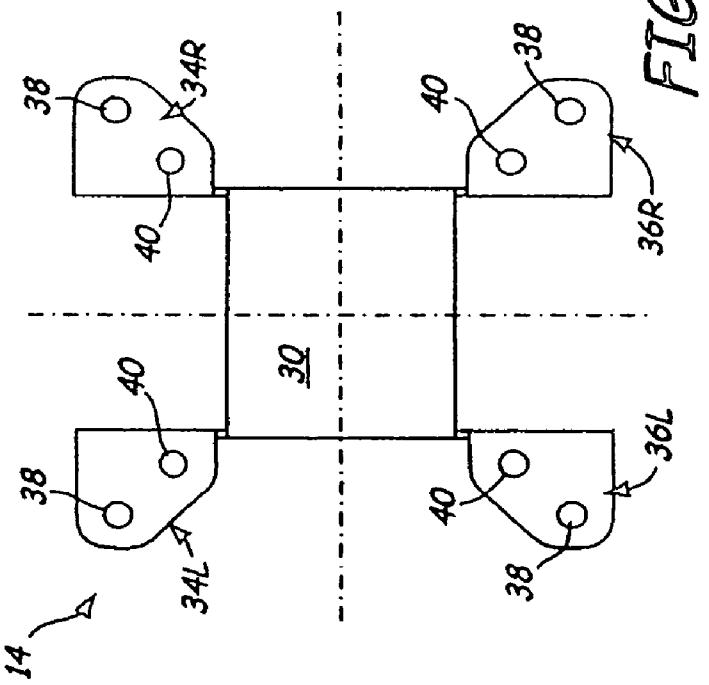


FIG. 3A

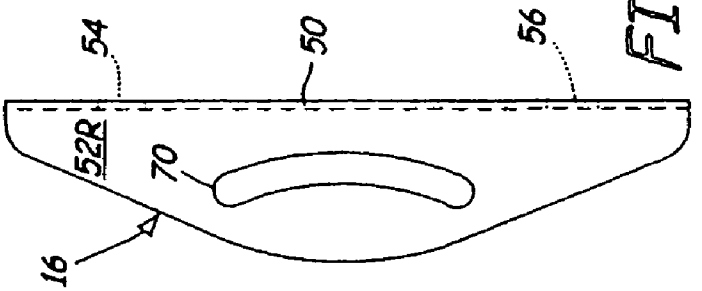


FIG. 4B

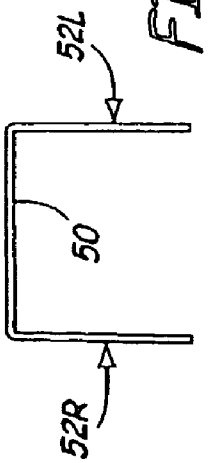


FIG. 4C

FIG. 4A

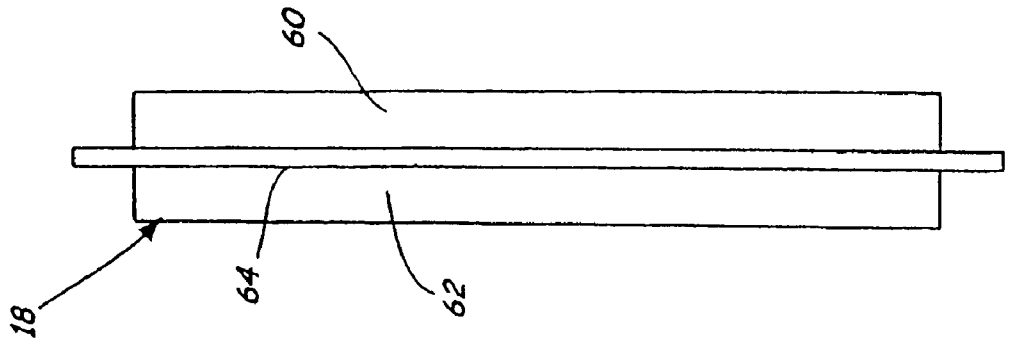


FIG. 5B

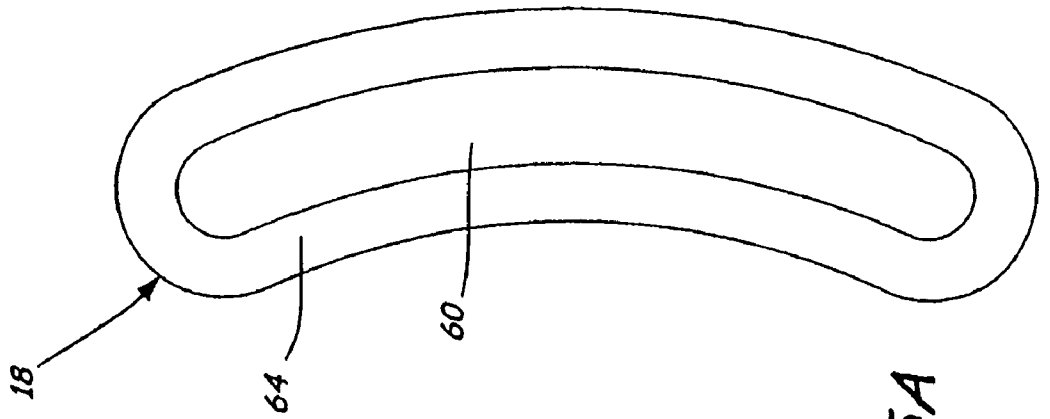


FIG. 5A

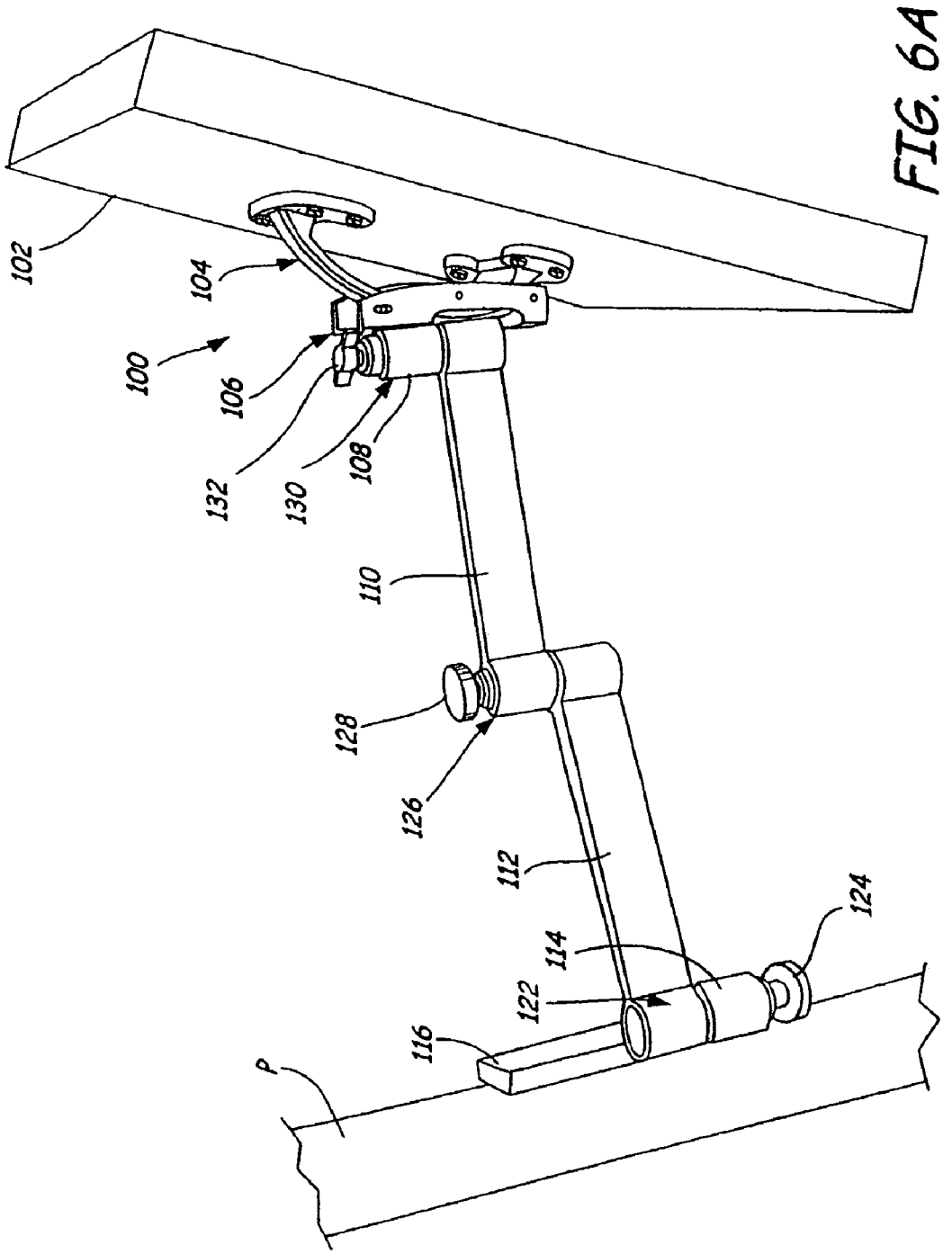


FIG. 6A

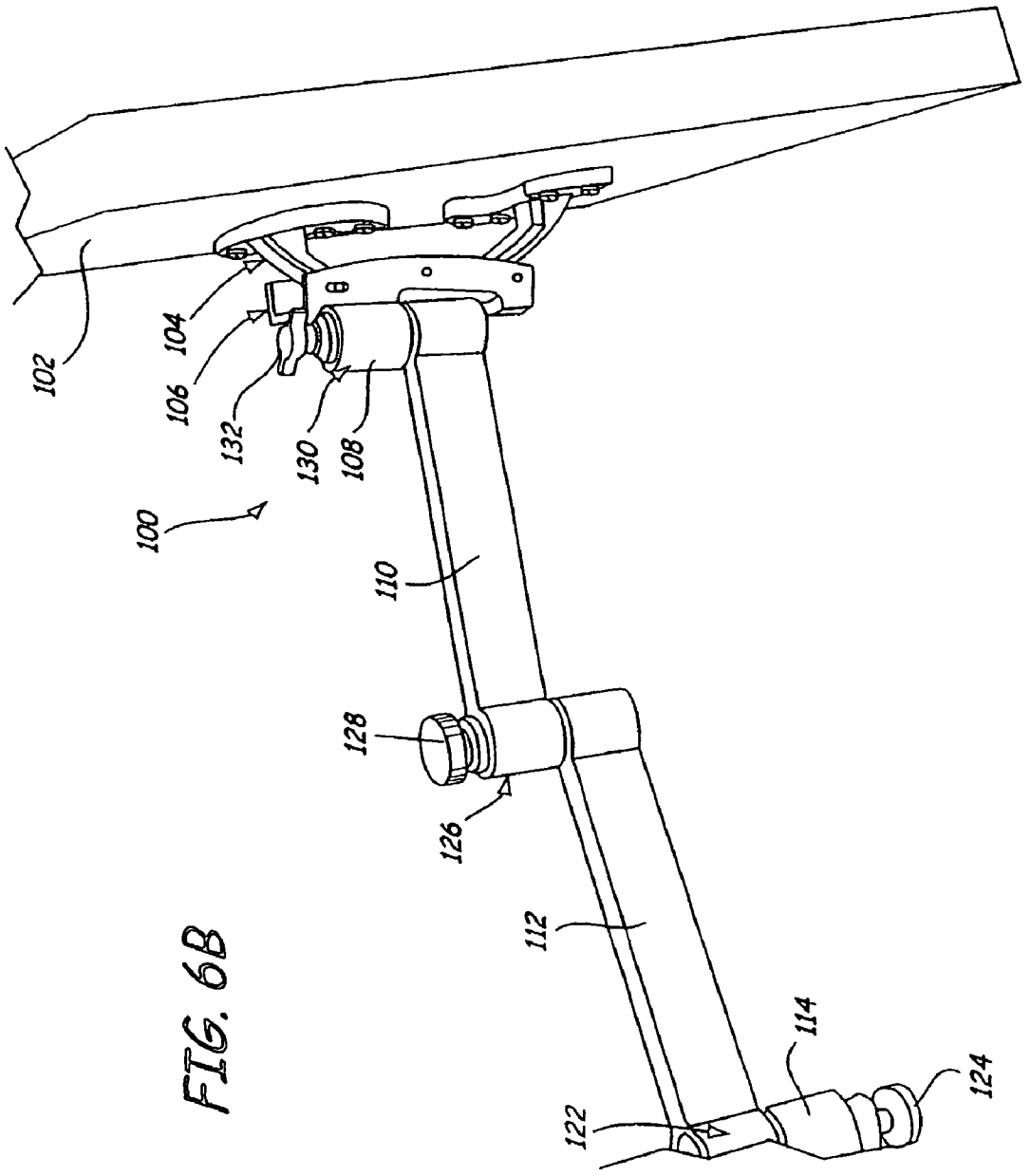


FIG. 6B

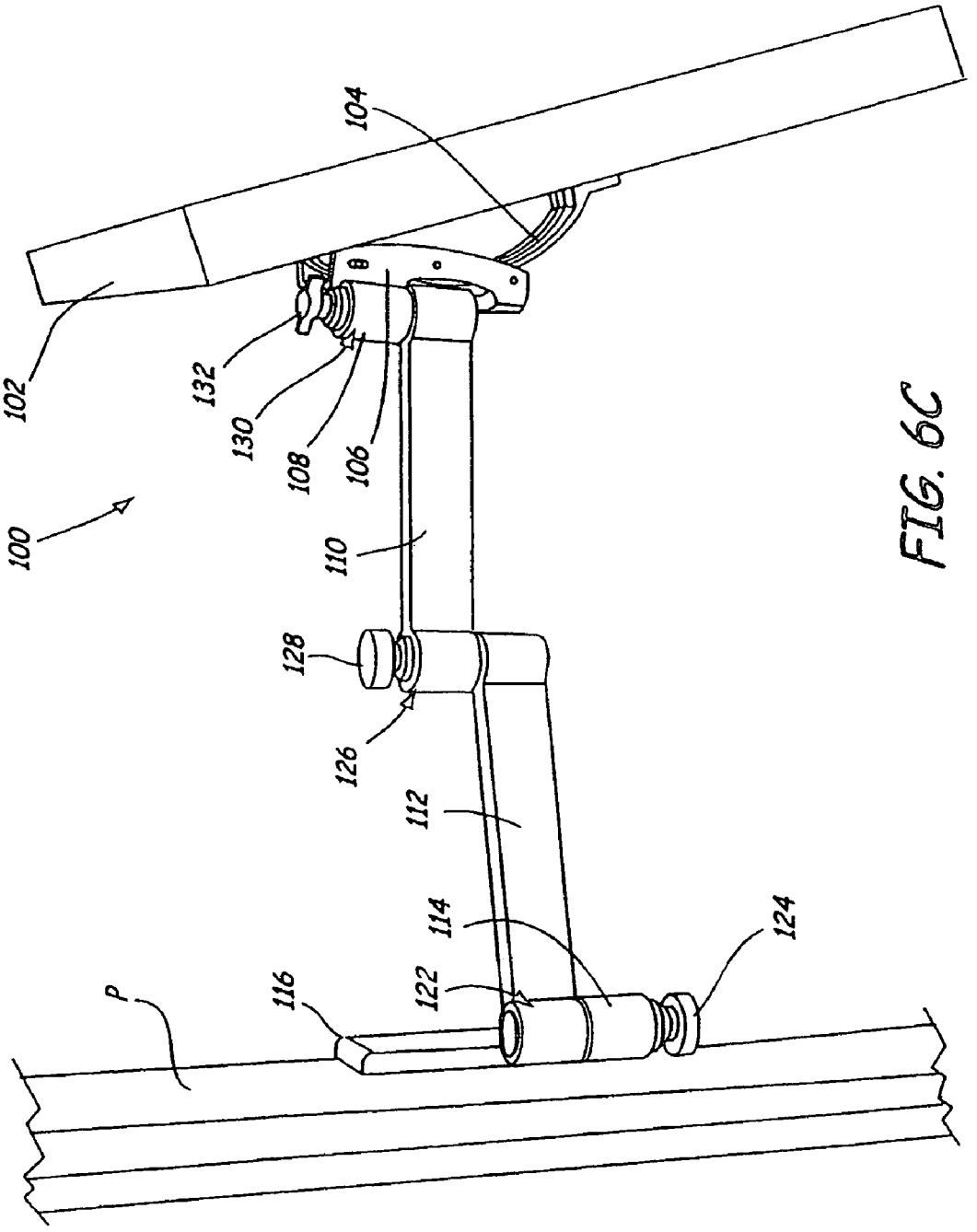


FIG. 6C

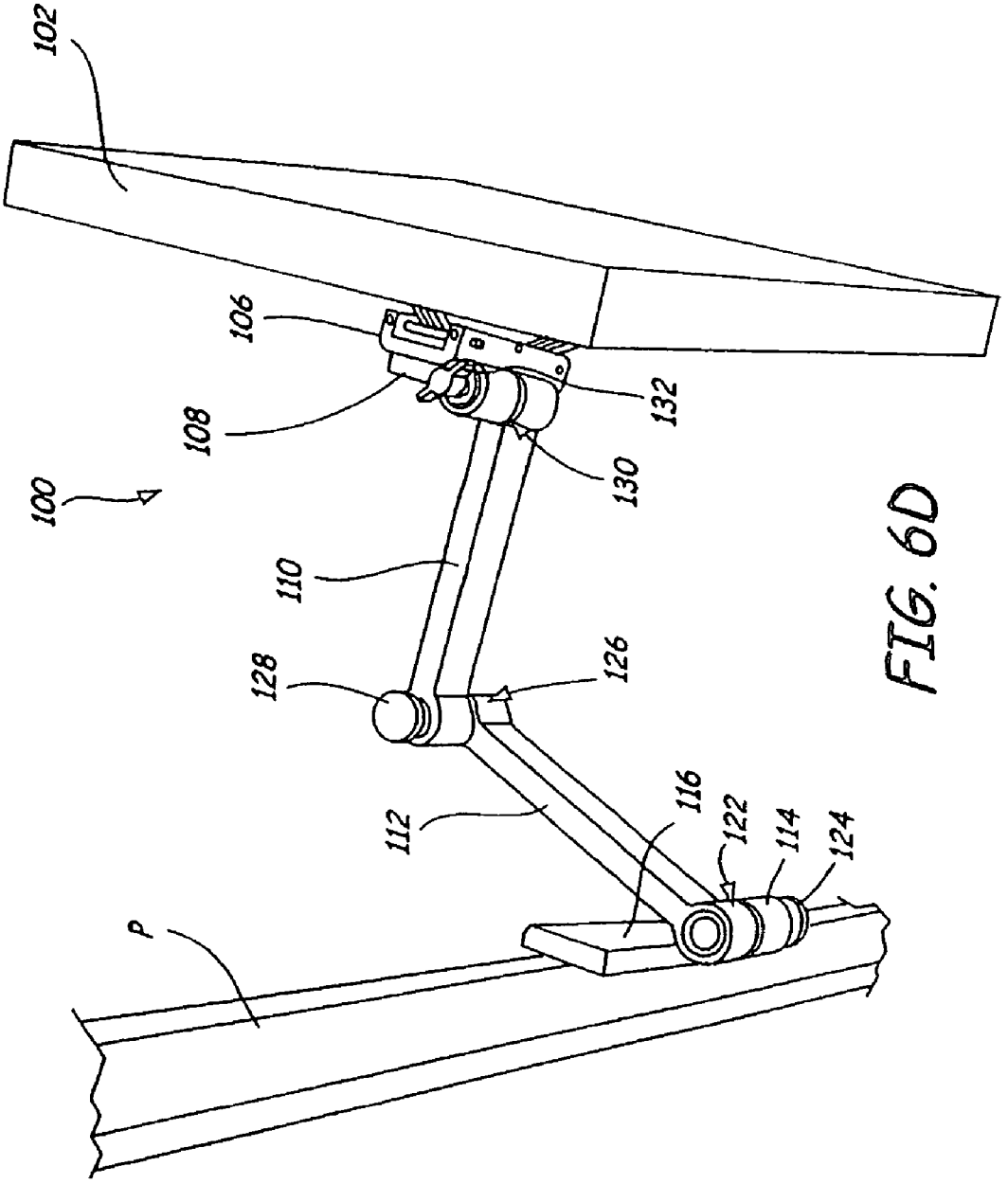


FIG. 6D

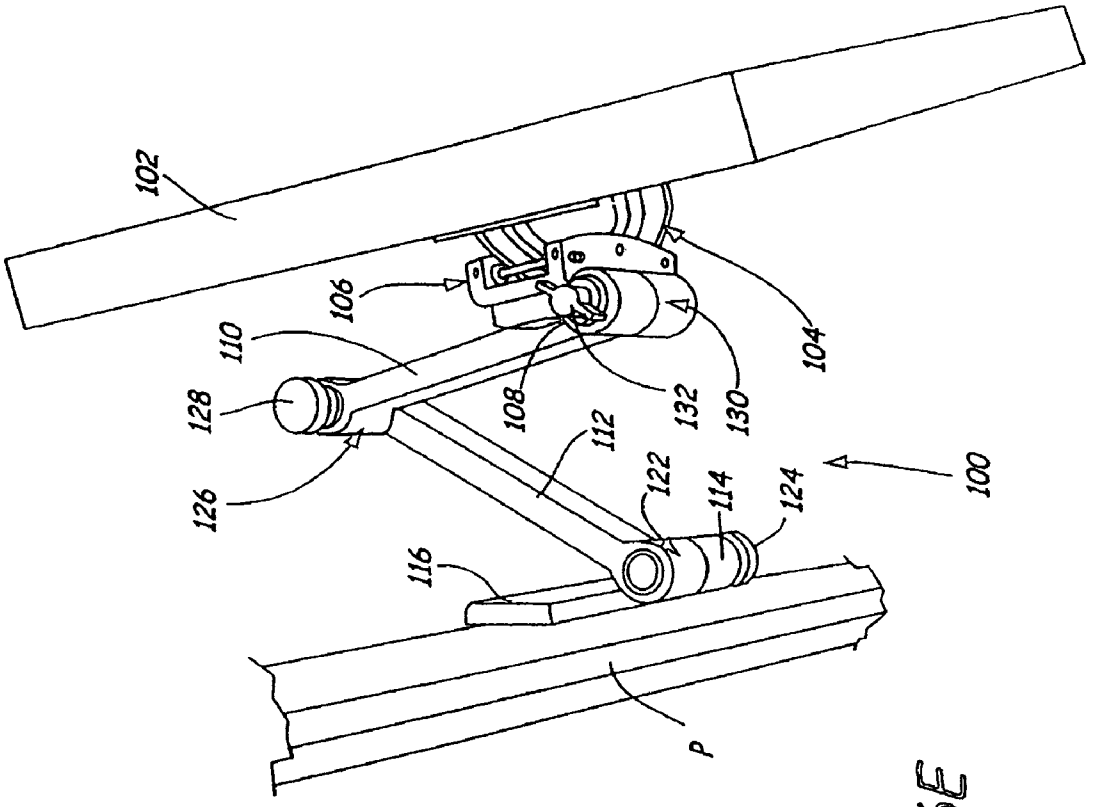


FIG. 6E

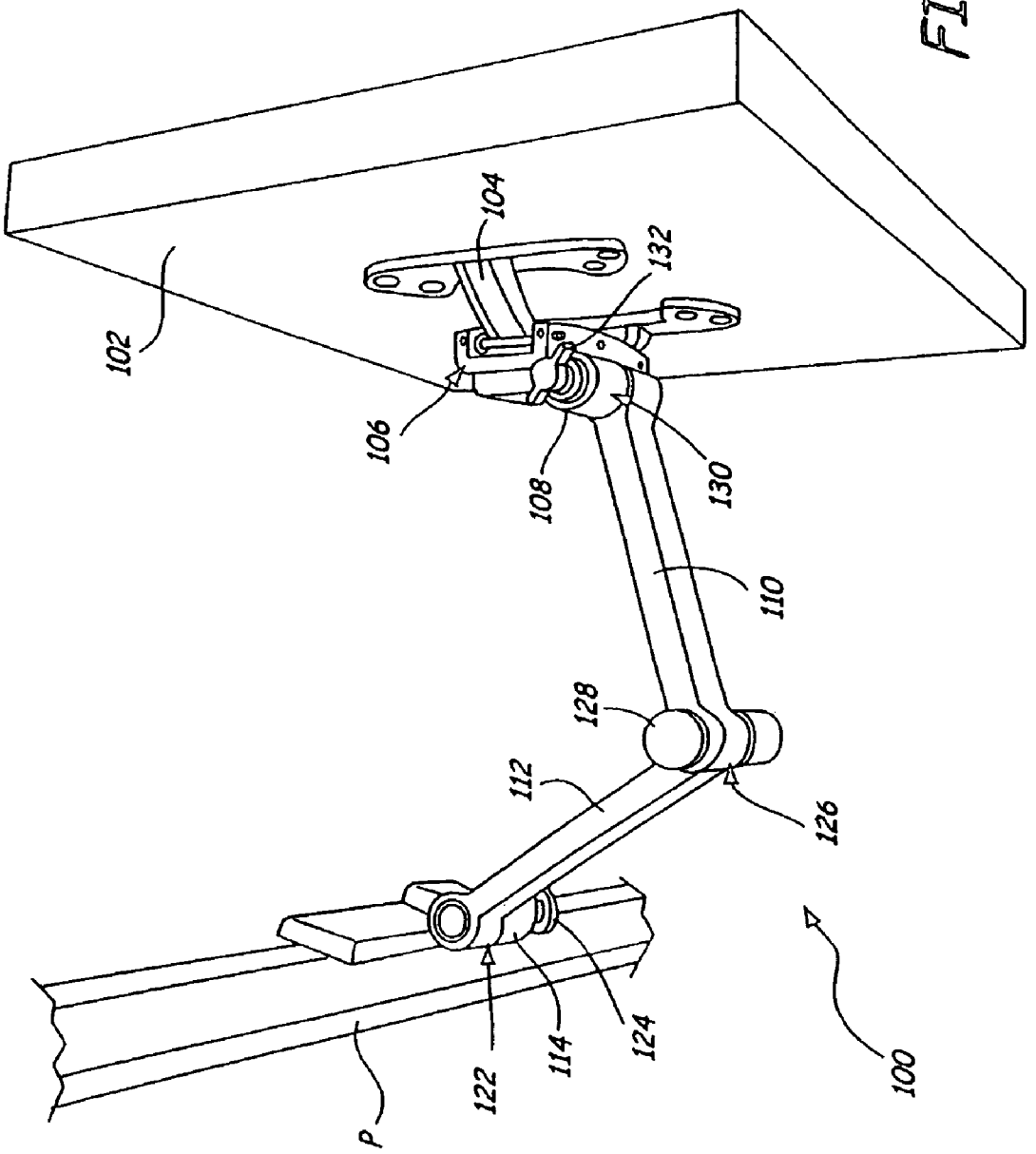


FIG. 6F

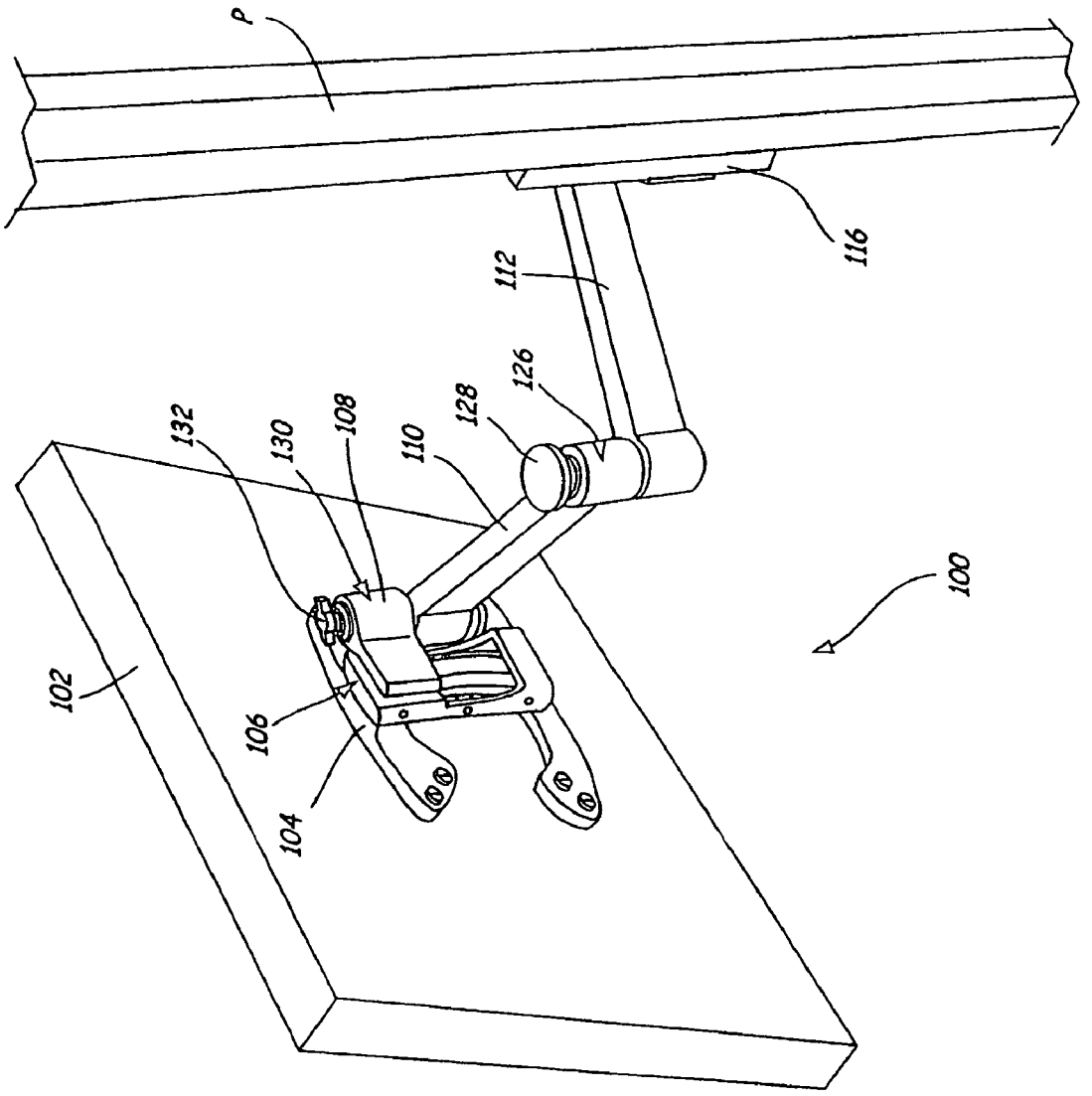


FIG. 6G

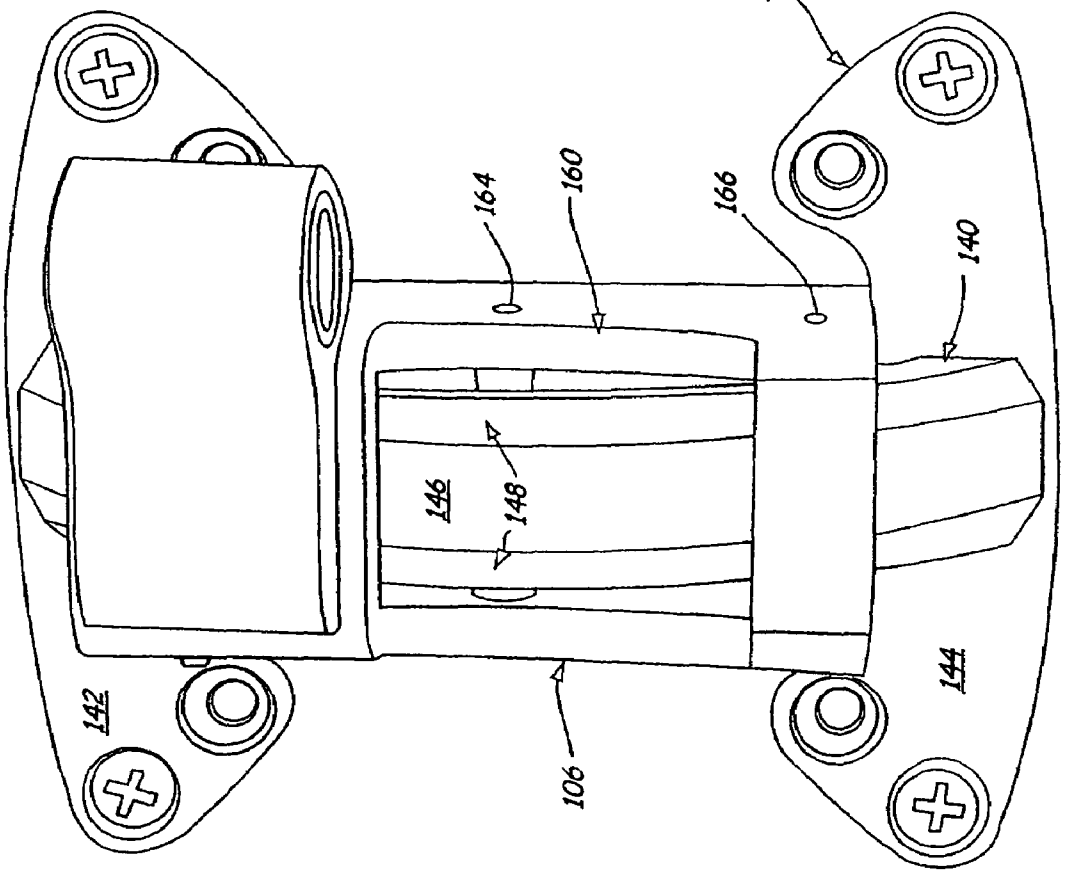


FIG. 7A

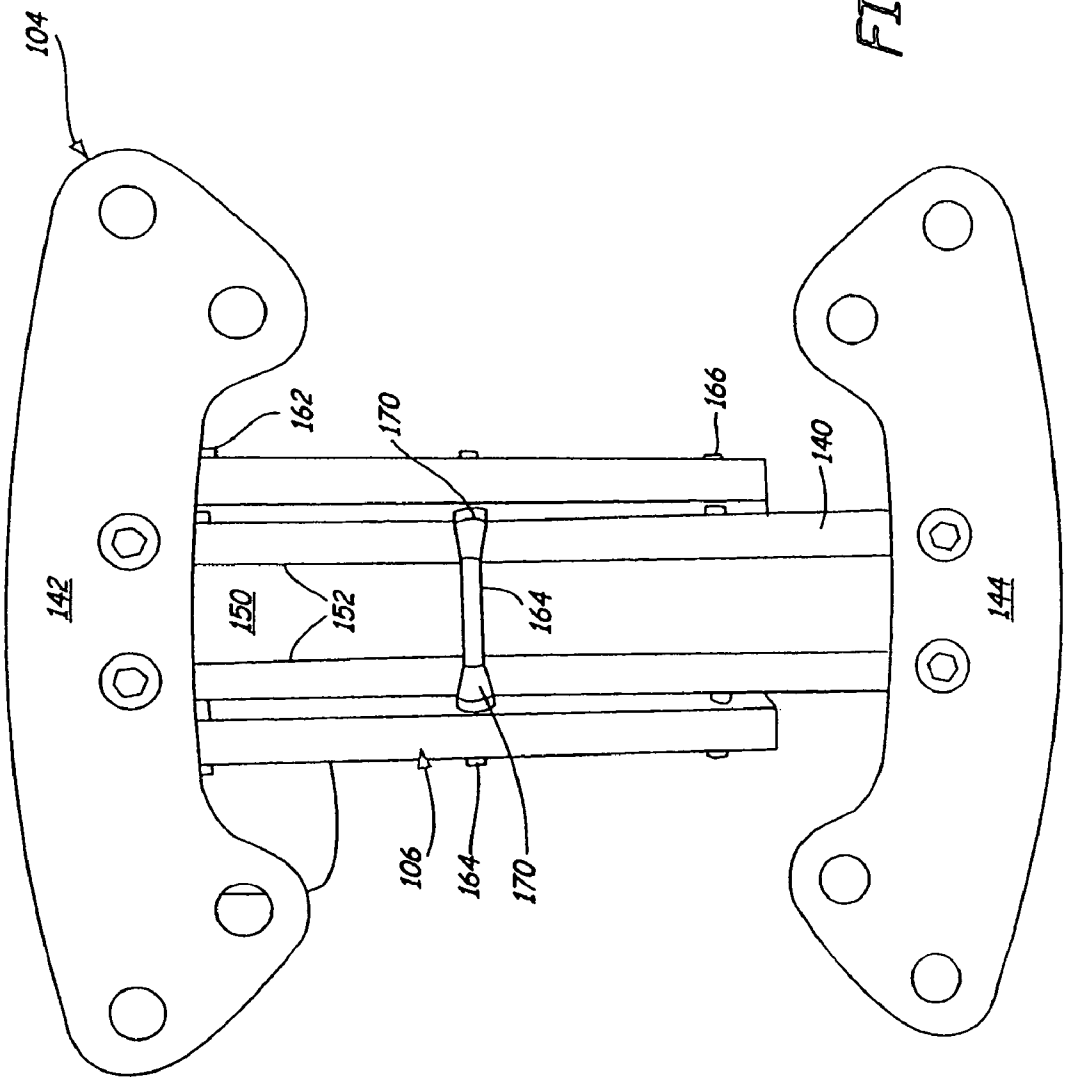


FIG. 7B

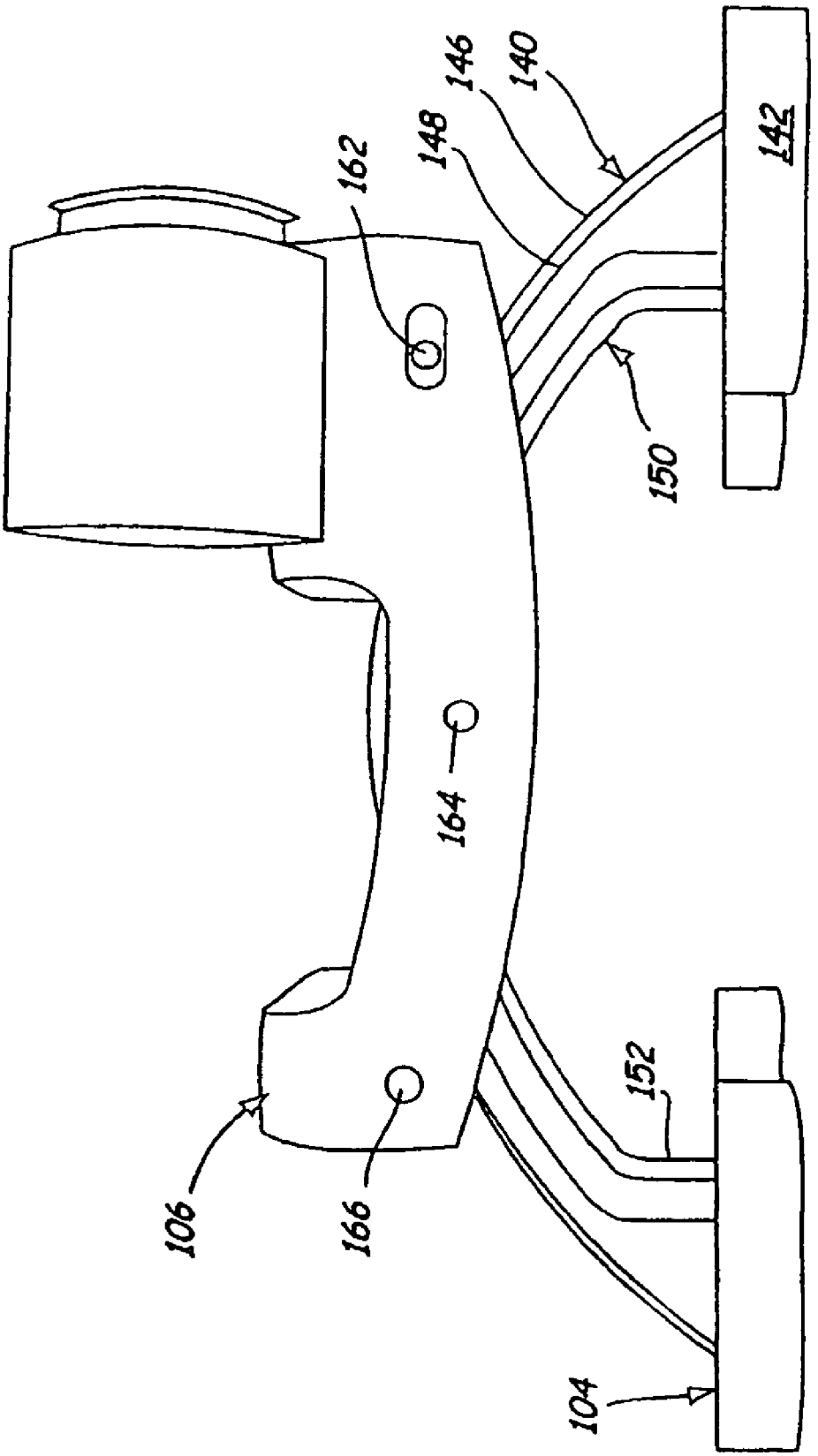


FIG. 7C

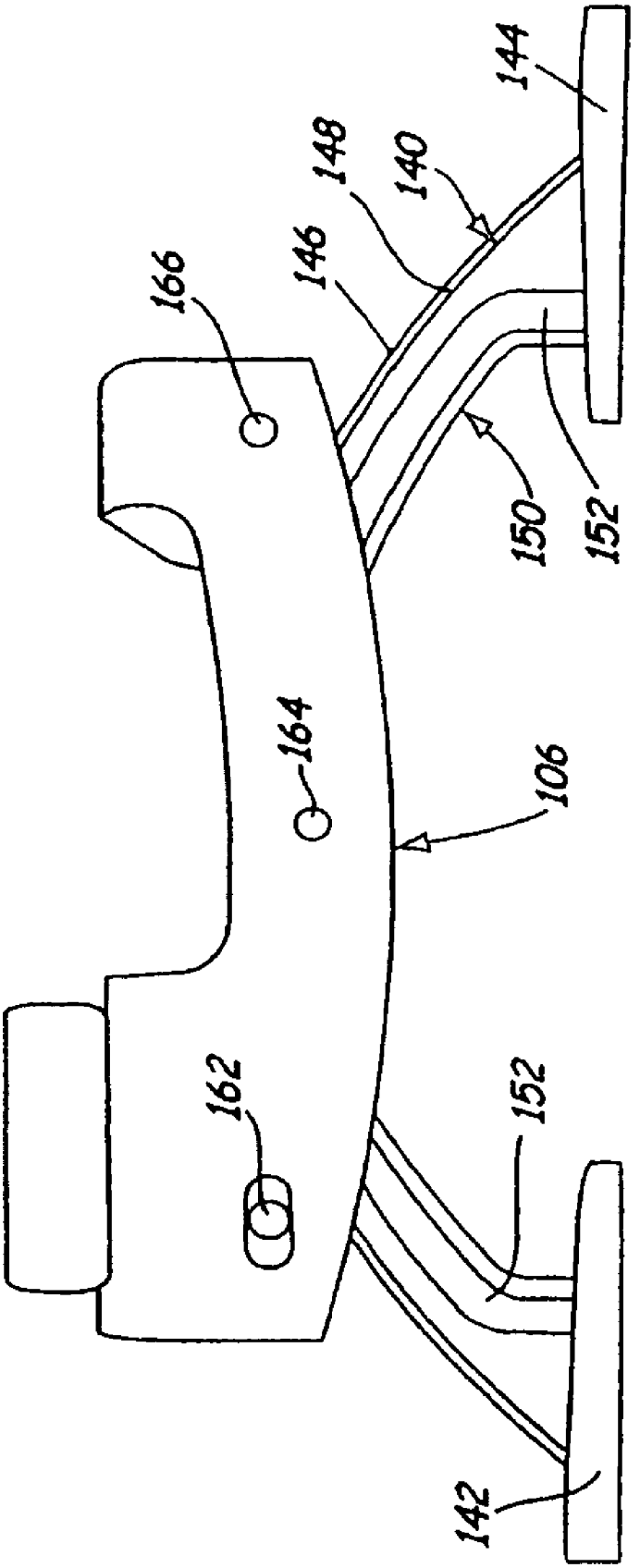


FIG. 7D

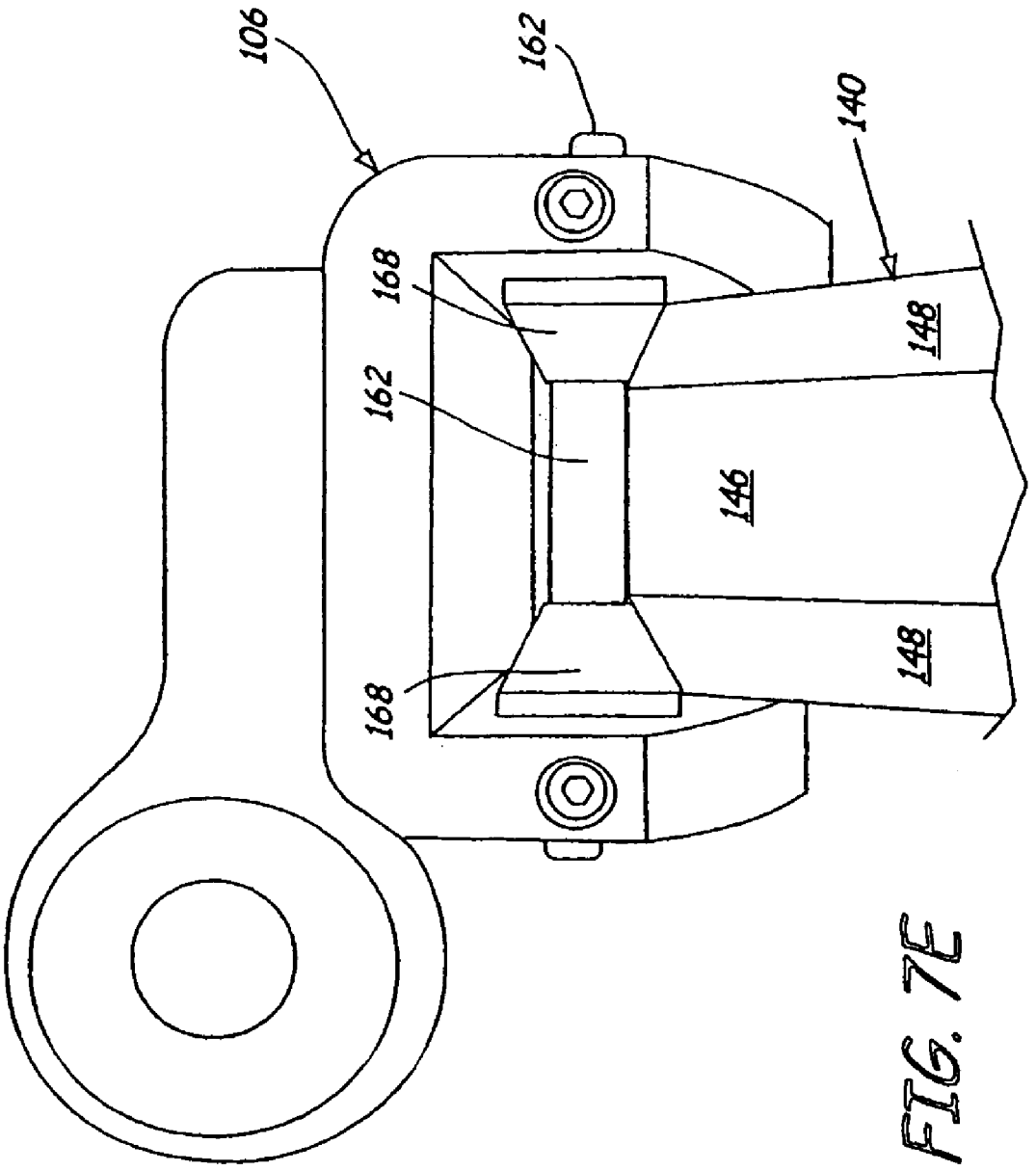


FIG. 7E

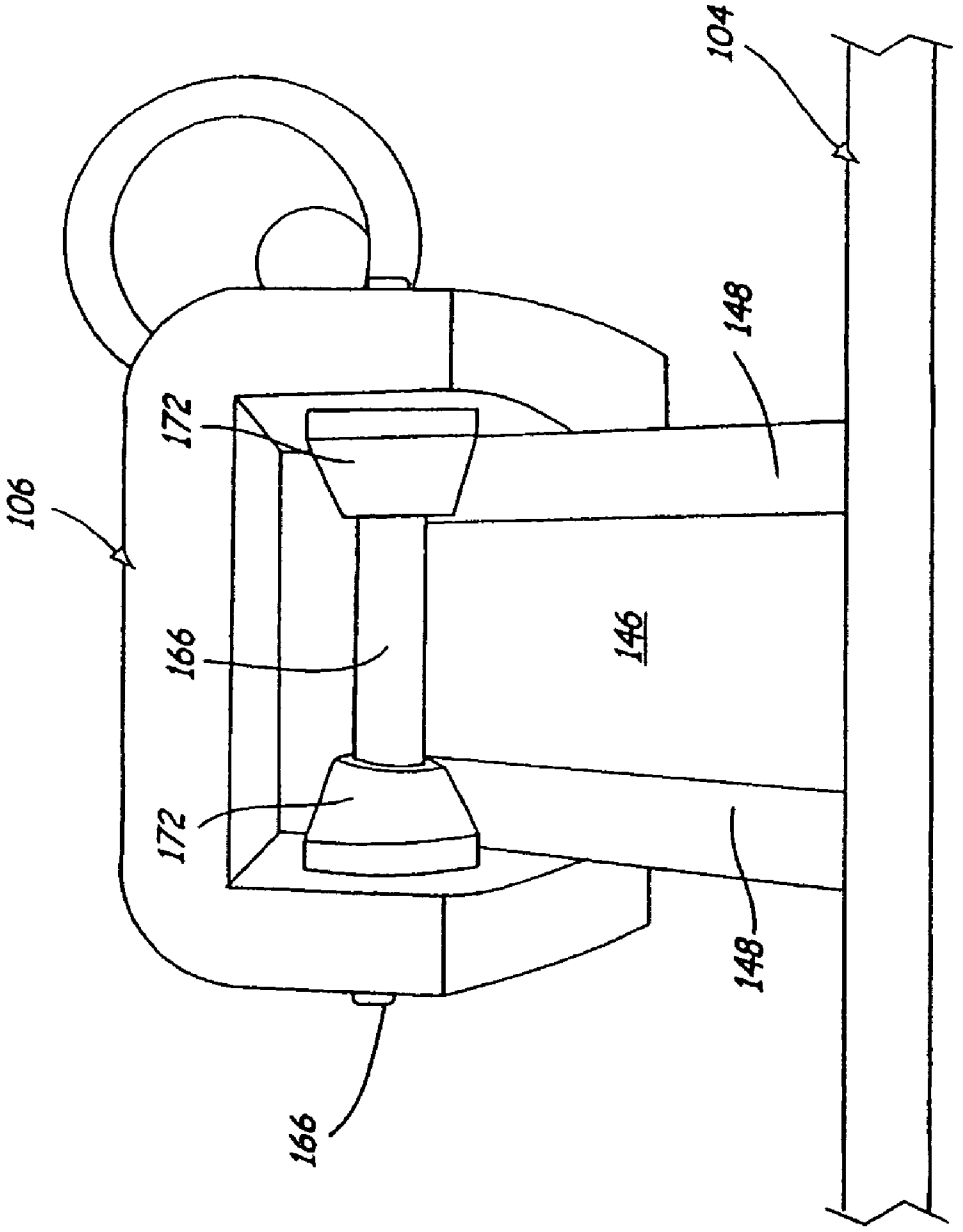


FIG. 7F

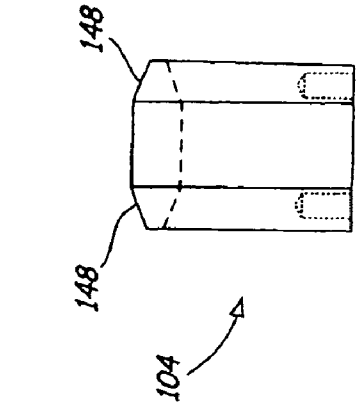


FIG. 8B

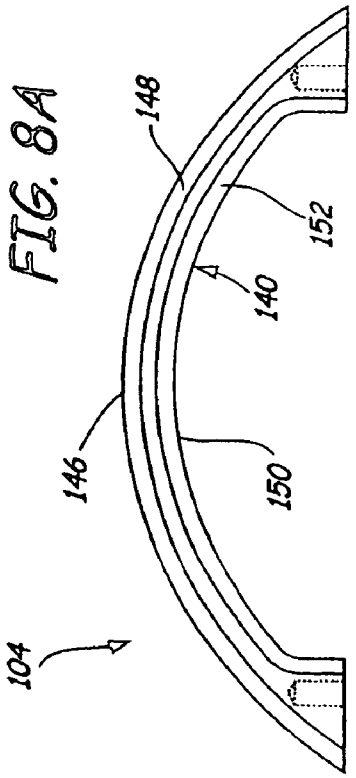


FIG. 8A

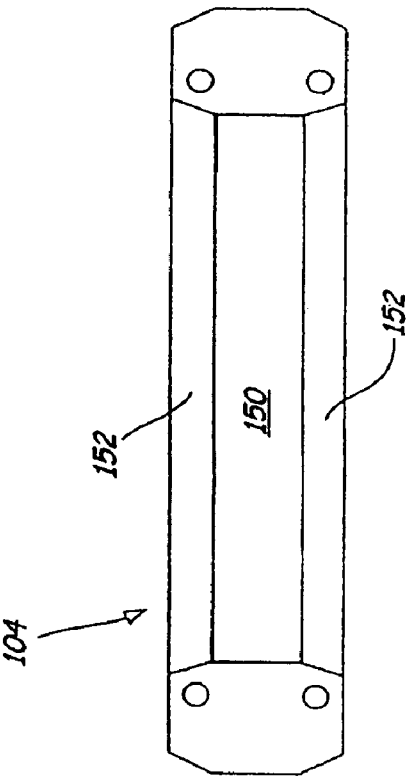


FIG. 8C

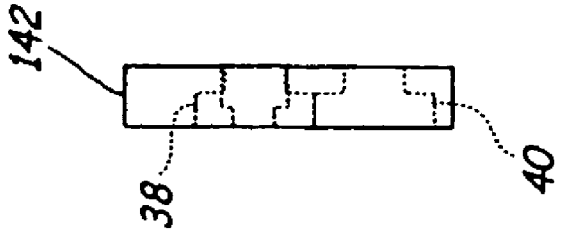


FIG. 9B

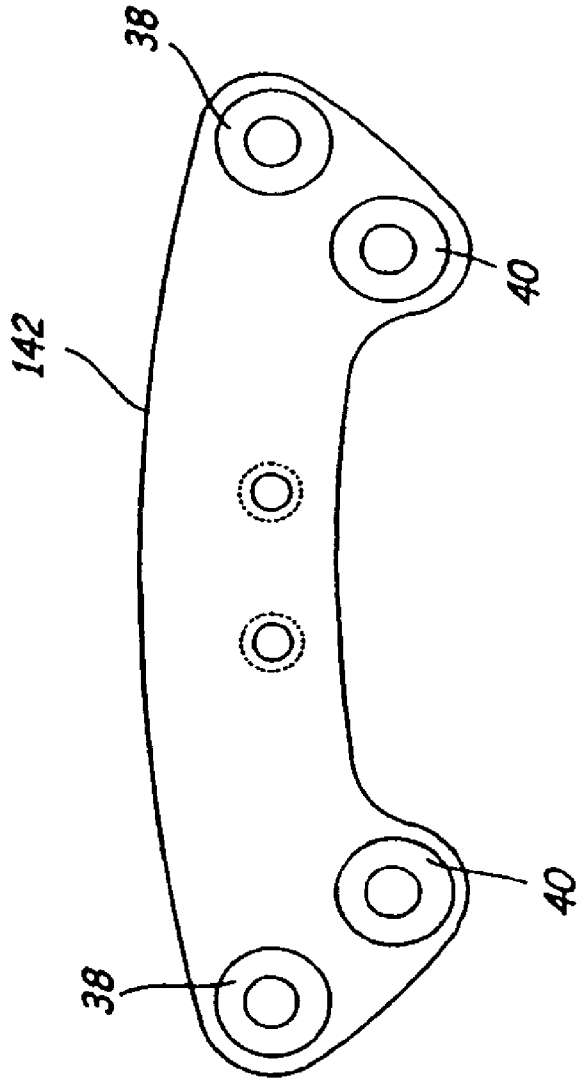


FIG. 9A

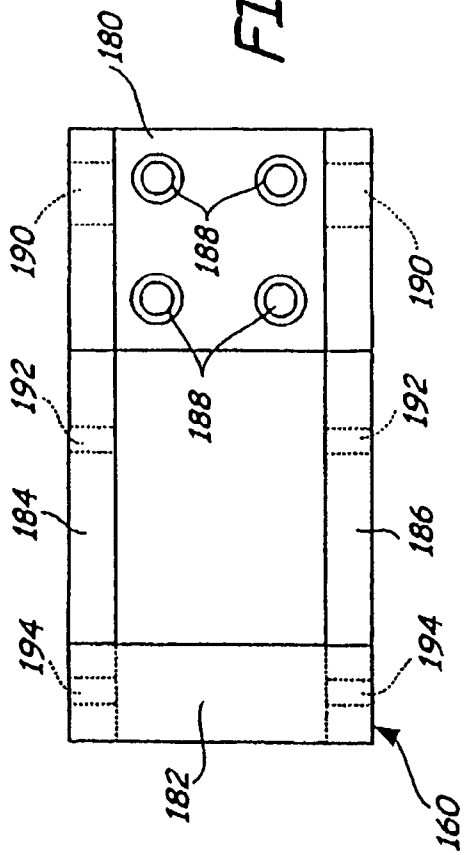


FIG. 10A

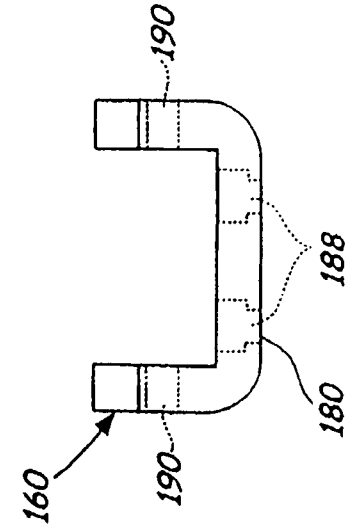


FIG. 10C

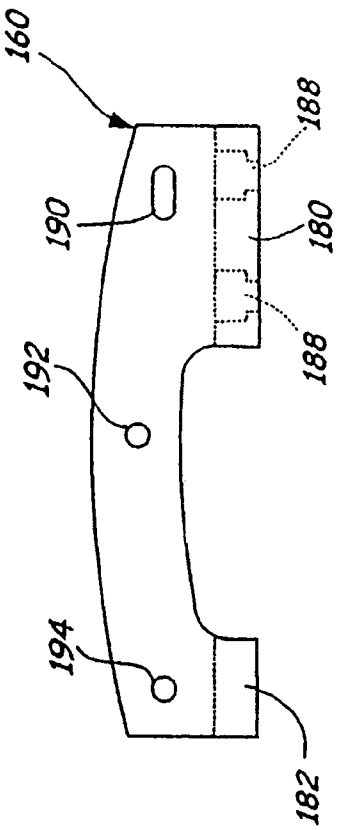


FIG. 10B

FIG. 11B

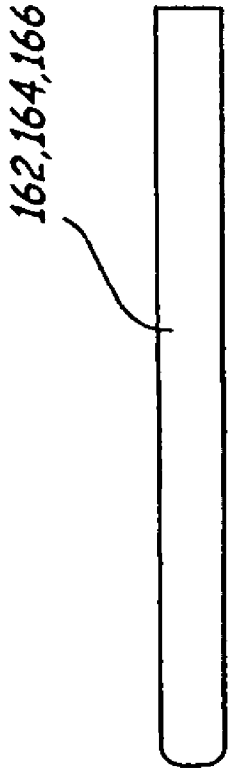


FIG. 11A

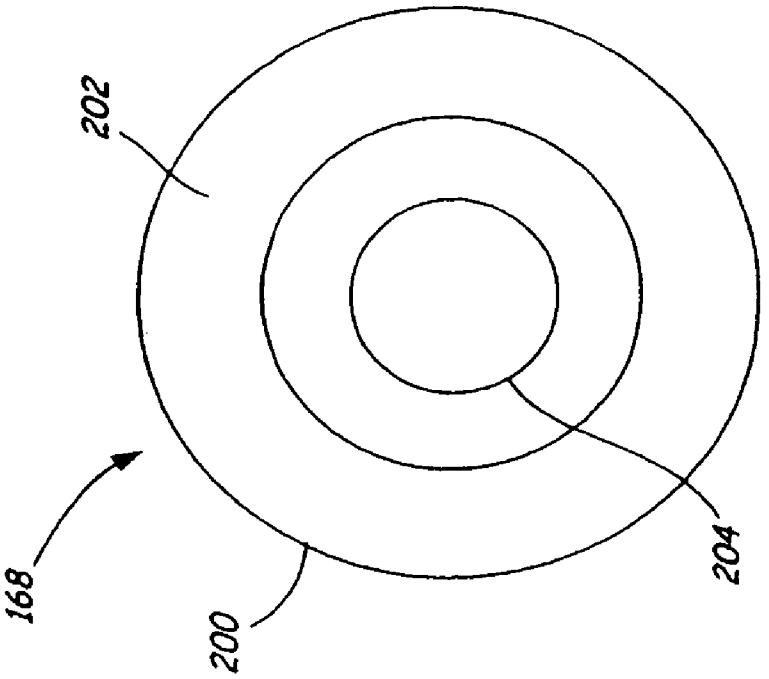


FIG. 12B

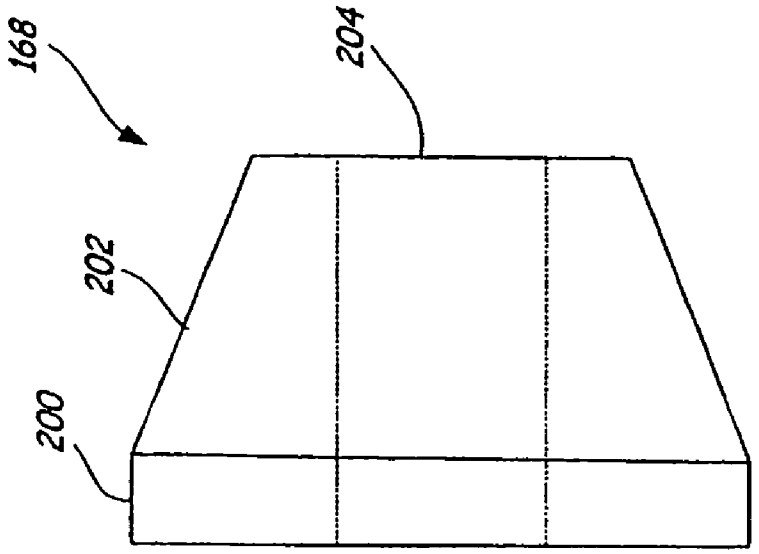


FIG. 12A

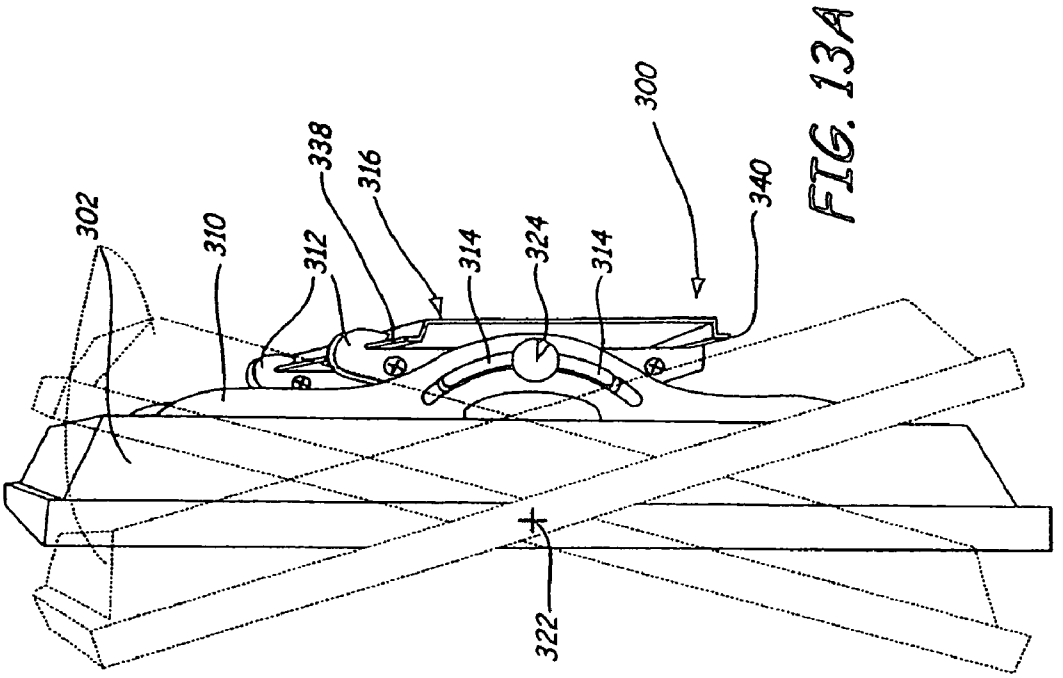
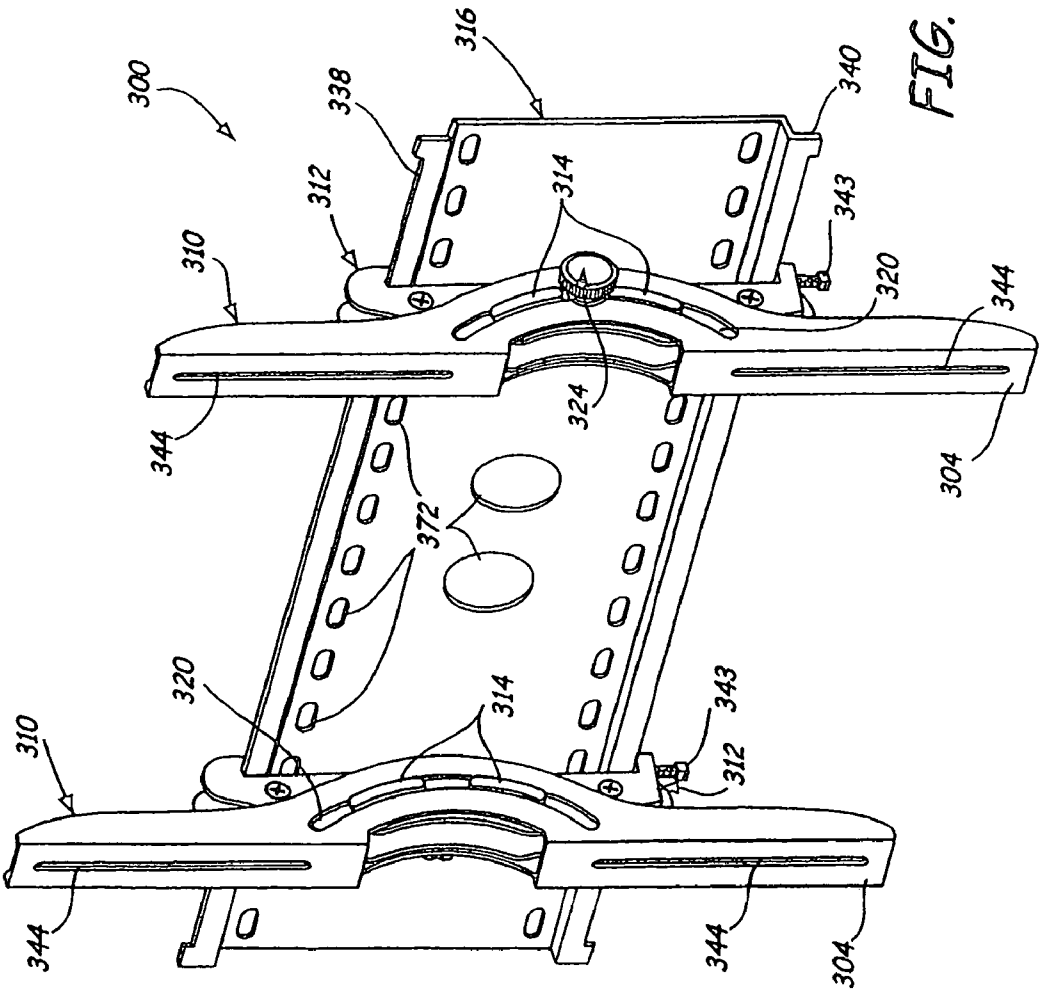


FIG. 13A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316
338
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FIG. 13B

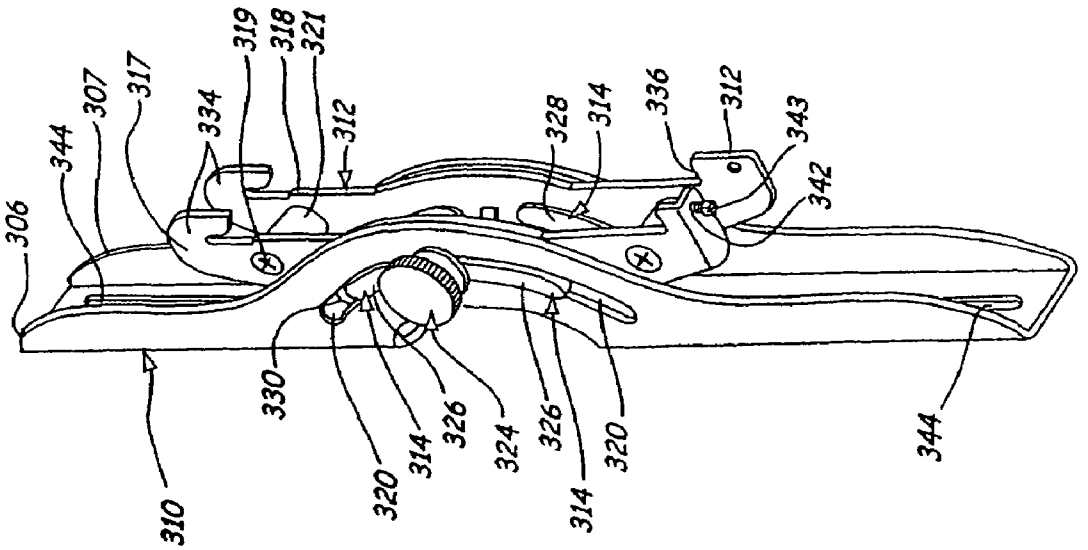
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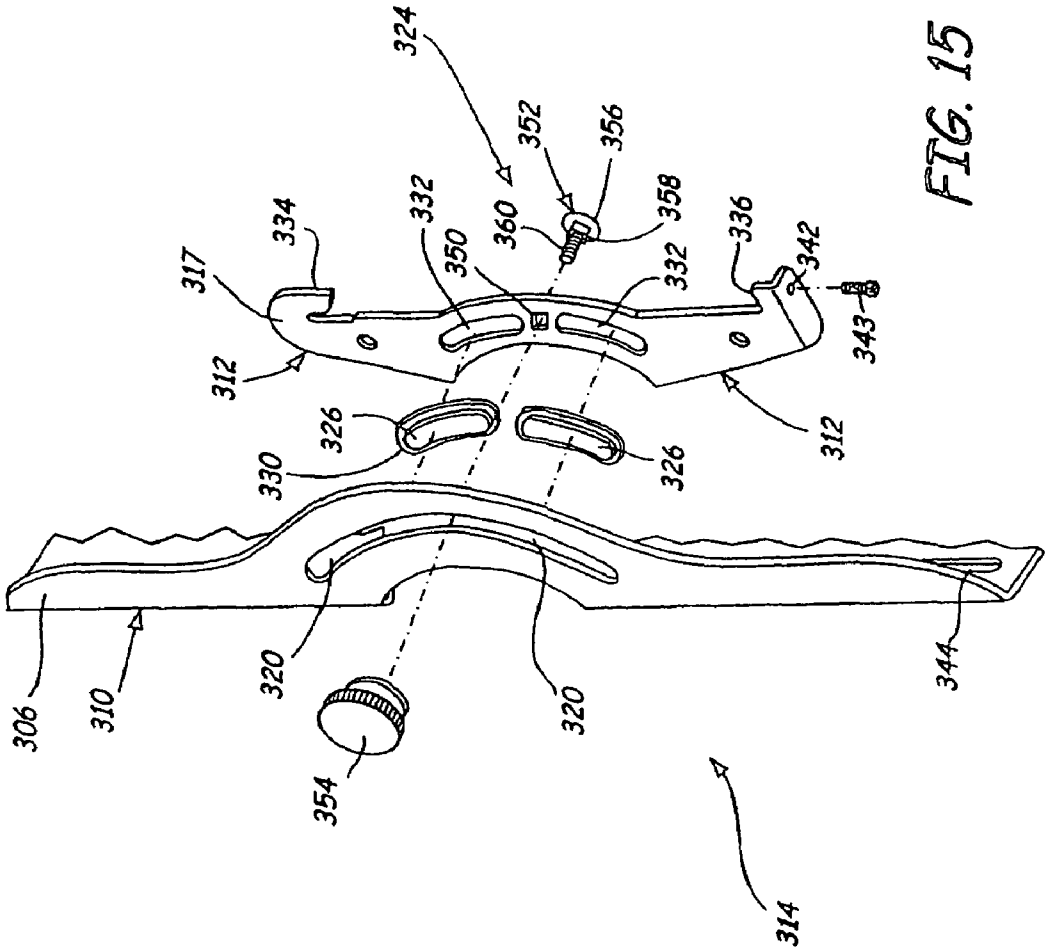
FIG. 14


324
352
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314
344

FIG. 15

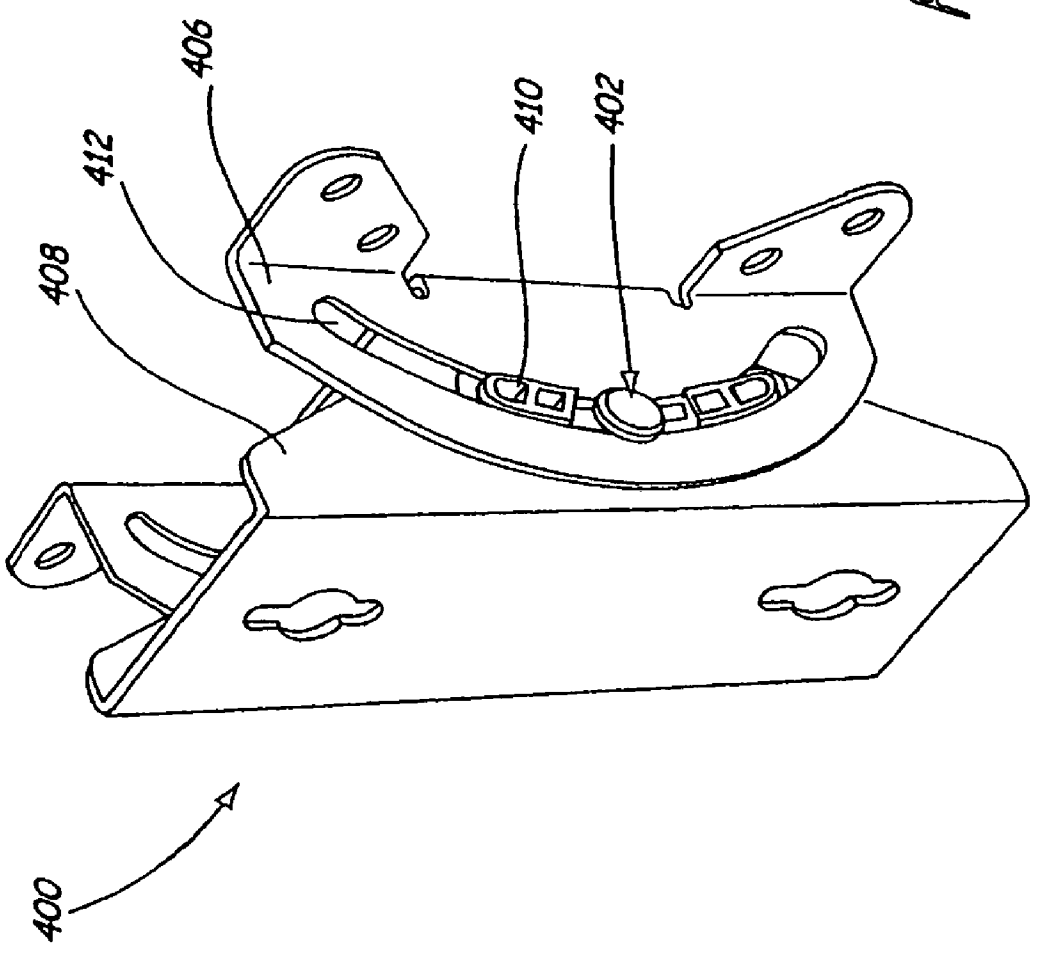
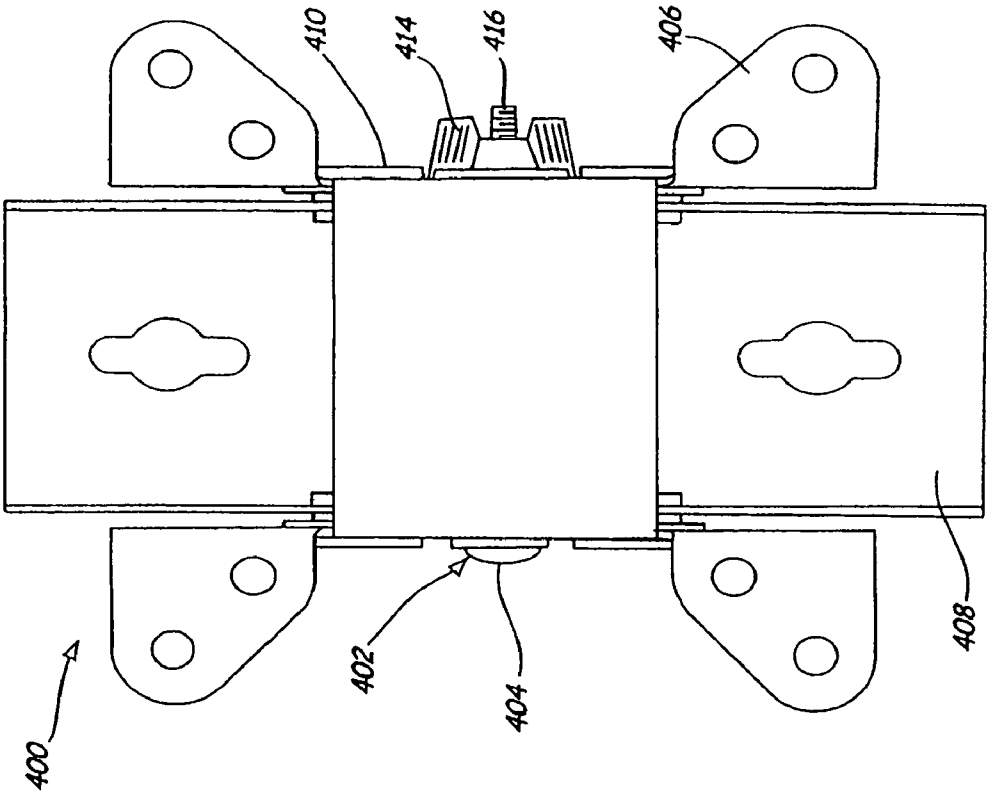


FIG. 16A

FIG. 16B



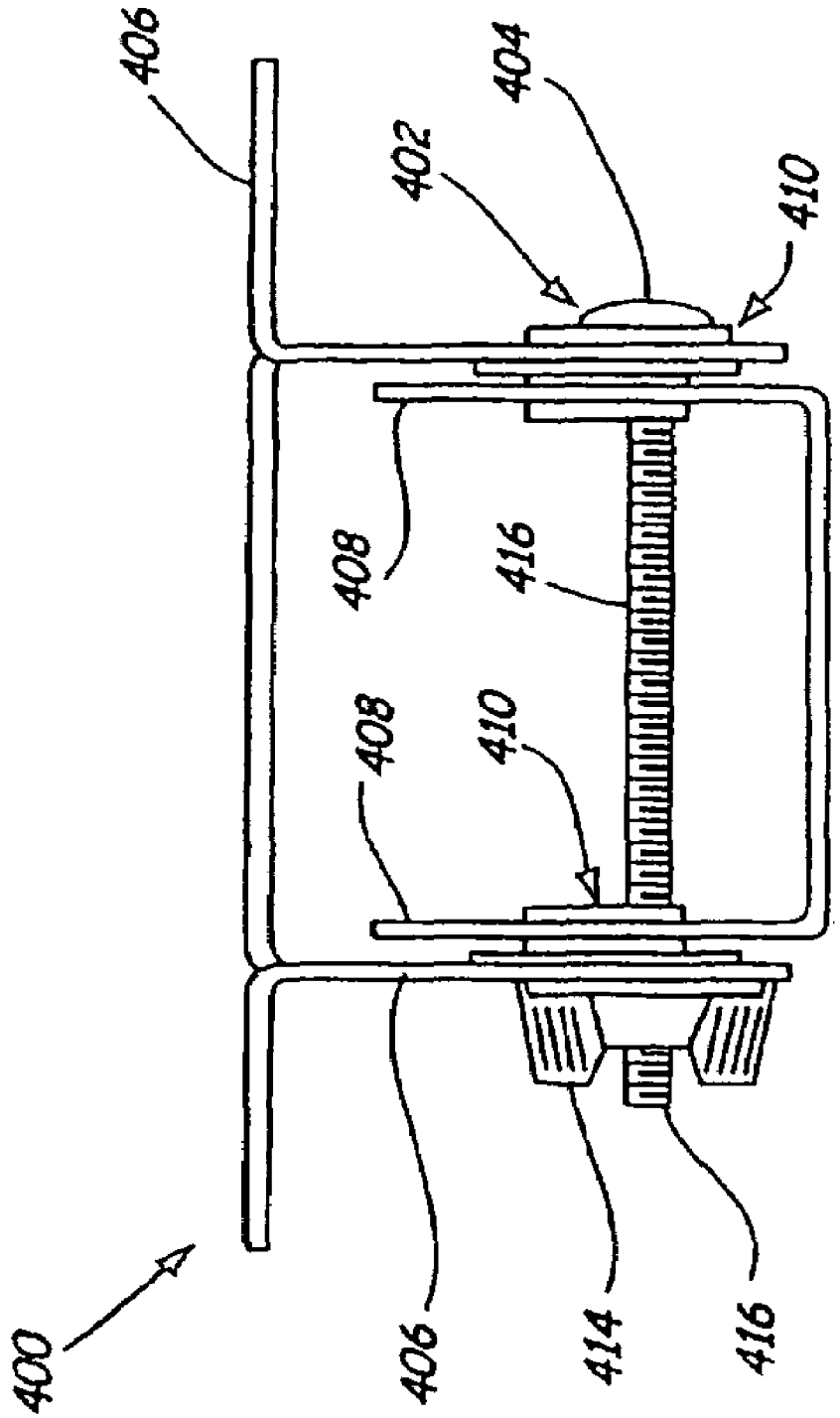


FIG. 16C

ADJUSTABLE TILT MOUNT

CROSS REFERENCE TO RELATED APPLICATIONS

This application is a continuation of U.S. patent application Ser. No. 11/194,298, filed Aug. 1, 2005 which is a continuation of U.S. patent application Ser. No. 10/455,624, filed Jun. 6, 2003, which claims priority to U.S. Provisional Pat. App. No. 60/438,889, filed Jan. 9, 2003.

BACKGROUND OF THE INVENTION

The present invention relates to mounts for interface devices such as computer monitors and televisions. In particular, the present invention relates to a mount which allows the interface to be tilted about a generally horizontal pivot axis.

The development of flat panel computer monitors and flat screen televisions offers the opportunity to replace large computer monitors and large television sets with displays having the same screen area but only a small fraction of the depth and weight. This allows computer monitors to be placed on desks without consuming a large portion of the desk top space. Similarly, flat screen televisions can be placed in locations which were previously not practical locations.

The light weight and thin profile of the flat panel monitors and televisions allows them to be supported on a relatively small base, be hung on a wall, or to be supported by a support system which is connected to a mounting surface such as a wall, a post, or a top, bottom, or side surface of a desk or cabinet. The ability to adjust the orientation of the flat panel display with respect to the viewer is a desirable feature. There is a need for mounting systems which will allow adjustment of the position and the orientation of the display. The support systems should be simple and easy to use, and should be stable so that the display remains in the position and orientation selected.

BRIEF SUMMARY OF THE INVENTION

A mounting system for an interface device such as a flat panel display (such as a computer monitor or television) allows the display to be tilted about a horizontal pivot axis which passes through a center of gravity of the display. The system includes a support and a mount which are connected together so that they can slide with respect to one another through an arc path which has the pivot axis at its center. The mount is attached to the back side of the display, while the support is connected directly or indirectly to a support surface.

The display can be tilted about the pivot axis, which is parallel to the front surface of the display, through a range of angles defined by the arc. Because the pivot axis passes through the center of gravity of the display, the weight of the display is balanced in any one of the angular positions. No clamping or other adjustment is required to hold the display in any one of its tilted positions.

BRIEF DESCRIPTION OF THE DRAWINGS

FIGS. **1**A-**1**C are side views showing a first embodiment of the mounting system of the present invention with a flat panel display tilted at three different positions.

FIGS. **1**D-**1**F are perspective views showing the display tilted at three different positions.

FIGS. **2**A and **2**B show front and side views of the mounting system of FIGS. **1**A-**1**F.

FIGS. **2**C-**2**F show perspective views of the mounting system.

FIGS. **3**A-**3**C show front, right side, and top views of the mounting bracket of the system of FIG. **2**A-**2**B.

FIGS. **4**A-**4**C show front, right side, and top views, respectively, of the wall or support bracket of the system of FIGS. **2**A-**2**B.

FIGS. **5**A and **5**B show side and front views, respectively, the glide of the system of FIGS. **2**A-**2**B.

FIGS. **6**A-**6**G show views of a second embodiment of the mounting system of the present invention with a flat panel display tilted in three different positions.

FIGS. **7**A-**7**F show views of the second embodiment of the mounting system of the present invention.

FIGS. **8**A-**8**C are side, top, and back views, respectively, of an arch of the mounting system of FIGS. **7**A-**7**F.

FIGS. **9**A and **9**B are rear and side view of a mount plate of the system of FIGS. **7**A-**7**F

FIGS. **10**A-**10**C are front, side and top views of a yoke of the system of FIGS. **7**A-**7**F.

FIGS. **11**A and **11**B are top and end views of a dowel of the system of FIGS. **7**A-**7**F.

FIGS. **12**A and **12**B are top and end views of a wheel of the system of FIGS. **7**A-**7**F.

FIGS. **13**A and **13**B are perspective views of a third embodiment of the present invention.

FIG. **14** is a perspective view of a mount and a support bracket of the third embodiment of the invention.

FIG. **15** is a broken, exploded view of the mount and support bracket of the third embodiment of the invention.

FIGS. **16**A-**16**C are perspective, front, and bottom views of a fourth embodiment of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

FIGS. **1**A-**1**F show a first embodiment of mounting system **10** of the present invention. In FIGS. **1**A-**1**F, mounting system **10** supports display **12**, which is a flat panel computer monitor or television at three different positions with respect to vertical.

Mounting system **10** has three major parts, mount bracket **14**, support or wall bracket **16**, and a pair of glides **18**. Mount bracket **14** is attached to a back surface of monitor **12**, while support **16** is connected either directly or indirectly to a support surface such as post P (or a wall).

Mount bracket **14** has a pair of arcuate slots **20** which define the range of sliding motion of mount bracket **14** with respect to support bracket **16**. Glides **18** are carried by support bracket **16** and project into slots **20**. Glides **18** ride within slots **20** to allow a sliding movement of mount **14** with respect to support **16**. The path of the sliding movement is defined by the arc of slots **20**. In the embodiment shown in FIGS. **1**A-**1**F, the extent of angular rotation permitted by sliding movement is approximately 50.degree.

The arc defined by slots **20** is a portion of a circle having its center defining a horizontal pivot axis **22**. As shown in FIGS. **1**A-**1**F, pivot axis **22** is a virtual pivot axis that passes approximately through a center of gravity of display **12**. As a result, the weight of display **12** remains balanced about pivot axis **22**, regardless of the tilt angle. There is sufficient friction between glides **18** and slots **20** so that display **12** will remain at whatever tilt angle the user selects.

The present invention provides a very simple and inexpensive mounting system which allows tilting of display **12** over a wide range of tilt angles. Although the embodiment shown

limits the range of tilt angles to approximately 50 degrees, the range could be either larger or smaller depending upon the length of the arc defined by slots **20**.

As shown in FIGS. **2**A-**2**F, mount **14** includes face **30**, right side wall **32**R, left side wall **32**L and mounting ears **34**R, **34**L, **36**R and **36**L. Each of the mounting ears **34**L, **34**R, **36**L, and **36**R include an outer mounting hole **38** and an inner mounting hole **40**. Arc slots **20** are located in left and right side walls **32**R and **32**L, and are aligned with one another. The curvature of slots **20** define a portion of the circle having a center at pivot axis **22** shown in FIG. **2**B.

Support **16** is a generally U-shaped bracket formed base **50**, right side wall **52**R, and left side wall **52**L. Mounting slots **54** and **56** are used to connect support **16** to a wall, a post, or other support. As seen in FIGS. **2**A-**2**F, side walls **32**R and **32**L of mount **14** straddle walls **52**L and **52**R of support **16**. Glides **18** are captured between the side walls of mount **14** and support **16**. Each glide **18** includes outer projection **60**, inner projection **62**, and central flange **64**. Outer projections **60** project outward through arcuate slots **20**. Inner projections **62** are similar in shape to outer projection **60**, and extend through mating slots **70** (shown in FIG. **2**D) through side walls **52**L and **52**R of support **16**. The size of the arcuate slots **70** in side walls **52**L and **52**R generally matches the shape of inner projections **62**. Flanges **64** are captured between opposing side walls **32**L and **52**L and **32**R and **52**R, respectively. As a result, glide **18** is generally held in place with respect to support **16**, while mount **14** can slide back and forth along the path defined by arc slots **20** from an upper-most position defined when the upper end of slot **20** engages the upper end of outward projection **60** and a lower-most position in which the lower end of projection **60** engages the lower end of slot **20**. These two extreme positions are illustrated in FIGS. **1**A, **1**B, **1**D and **1**F.

FIGS. **3**A-**3**C show mount bracket **14** in further detail, and FIGS. **4**A-**4**C show support bracket **16** in further detail. Dimensions of a preferred embodiment are shown in the Figures. For both support **16** and mount **14**, a preferred material is 0.075 cold rolled steel (CRS 14 GA). Mount and support brackets **14** and **16** preferably have a powder coat final finish.

FIGS. **5**A and **5**B show one of the glides **18**. The preferred material for slides **18** is Delrin plastic.

As shown in FIGS. **3**A-**3**C, **4**A-**4**C and **5**A-**5**B, the preferred radius of the center line of slots **20** and mount **14**, slots **70** in support **16**, and glides **18** define a radius of curvature of 2.344 inch. This results in a location of pivot axis **22** about one inch forward of the front surfaces of base **30** and mounting ears **34**L, **34**R, **36**L and **36**R of mount **14**. This location of pivot axis **22**, with mount **14** attached generally in the center back of display **12**, results in pivot axis **22** passing through or very nearly through the center of gravity of display **12**. As a result, display **12** is weight-balanced in the various tilt positions. As configuration and weight distribution of flat screen panels changes, dimensions of the arc path may be changed to maintain weight balance.

FIGS. **6**A-**6**G show a second embodiment of the present invention. Mounting system **100** supports display **102** in a wide variety of different positions and or orientations, as illustrated in FIGS. **6**A-**6**G. Mounting system **100** includes mount assembly **104**, support assembly **106**, side knuckle **108**, dog bone support arms **110** and **112**, side knuckle **114**, and wall plate **116**.

As shown in FIGS. **6**A-**6**G, mounting system **100** is supported from a vertical support, which in this case is pole P. Wall plate **116** is attached to pole P, and side knuckle **114** is attached to wall plate **116**.

The inner end of dog bone **112** is pivotally connected to side knuckle **114** by tapered bearing **122**. Adjustment screw **124** controls the drag of taper bearing **122** to control the rotation of dog bone **112** with respect to side knuckle **114**.

The outer end of dog bone **112** is pivotally connected to the inner end of dog bone **110** by tapered bearing **126**. Adjustment screw **128** controls the frictional drag produced by tapered bearing **126**, and can be used to lock dog bones **112** and **110** in a fixed orientation if desired.

The outer end of dog bone **110** is pivotally connected by tapered bearing **130** to side knuckle **108**. Adjustment screw **132** is used to adjust drag or to lock dog bone **110** and side knuckle **108** together as desired.

Support assembly **106** is attached by screws to the side arm of side knuckle **108**.

Support **106** forms a sliding connection with mount **104**. As in the first embodiment of the present invention, the sliding connection is defined by an arc segment of a circle which has a center defining a pivot axis of display **102**. The pivot axis is positioned at or very near the center of gravity of display **102**, so that display **102** is weight-balanced in the various tilt positions.

Mount **104** is attached by screws to the back surface of display **102**. Because of the balance of weight about the virtual pivot axis defined by mount assembly **104** and support assembly **106**, display **102** can be tilted through a range of positions as illustrated in FIGS. **6**A-**6**G. Display **102** is stable in any of the positions, and once tilted to that position will remain in place without needing to be clamped. Mounting system **100**, like mounting system **10**, provides an extremely easy-to-use adjustment of tilt of a flat panel display. The user merely moves the display about the pivot axis to the desired mount of tilt, and the display will remain in the tilted position.

FIGS. **7**A-**7**F show mount assembly **104** and support assembly **106** in greater detail.

Mount assembly **104** includes arch **140** and mounting plates **142** and **144**. Mounting plate **142** is attached to one end of arch **140** by a pair of screws, and mounting plate **144** is attached to the opposite end of arch **140** by a pair of screws. Arch **140** defines an arc having as its center the virtual pivot axis which passes horizontally through display **102**. Outer surface **146** has beveled edges **148** along its longitude and latitude. Similarly, inner surface **150** of arch **140** has beveled edges **152**. Beveled edges **152** form parallel guide tracks for the sliding movement of arch **140** with respect to support assembly **106**.

Support assembly **106** includes yoke **160**, dowels **162**, **164**, and **166**, and wheels **168**, **170** and **172**. Each of the dowels **162**, **164**, **166** includes a pair of wheels **168**, **170**, **172**, respectively, for riding on beveled edges of arch **140**. Wheels **168** are mounted on opposite ends of dowel **162** to ride on beveled edges **148**. Wheels **170** are mounted on dowel **164** to ride on beveled edges **152**. Wheels **172** are mounted on dowel **166** and ride on beveled edges **148**. Thus arch **140** is captured between the three sets of rollers **168**, **170**, and **172** while permitting a sliding movement

FIGS. **8**A-**8**C and **9**A-**9**B show the components of mount assembly **104** in greater detail. FIGS. **8**A-**8**C show arc **140**, while FIGS. **9**A and **9**B shown mounting plate **142**. Mounting plate **144** is identical to mounting plate **142**, and is merely inverted as shown in FIGS. **7**A-**7**F.

FIGS. **11**A-**11**C shown yoke **160**, which has base sections **180** and **182**, and side walls **184** and **186**. Mounting holes **188** in base section **180** allow yoke **160** to be mounted to a connecting element such as side knuckle **108**, or to be mounted directly to wall plate **116**. Side walls **184** and **186** include

aligned slots **190** for dowel **162**, aligned through holes **192** for dowel **164**, and aligned through holes **194** for dowel **166**.

FIGS. **11**A and **11**B show dowel **162**, which is a ⅛ inch stainless steel dowel having one chamfered end. Dowels **164** and **166** are identical.

FIGS. **12**A and **12**B show one of the wheels **168** which are mounted on dowel **162**. Wheel **168** includes cylindrical outer end **200**, tapered section **202**, and central bore **204**. The inner diameter of bore **204** is sized to allow wheel **168** to fit over dowel **162**. The angular taper of section **202** matches the angle of the beveled edges **152** of arc **140**.

Both embodiments (**10**,**100**) of the present invention feature an arcuate sliding movement of a mount (**14**,**104**) with respect to a support (**16**,**106**). This defines a pivot axis about which the display (**12**,**102**) is tilted. The weight-balanced relationship of the display with respect to the pivot axis allows the display to be stable without clamping in any of the range of tilt angles. Thus a simple, easy-to-use tilt adjustment is provided.

FIGS. **13**A and **13**B show a third embodiment of the present invention. FIG. **13**A is a side view of a mounting system **300**, for use with larger displays **302**. As illustrated in FIGS. **13**A and **13**B, the mounting system **300** again includes three major parts, mount bracket **310**, support bracket **312**, and a set of glides **314**. Multiple mount brackets **310** can be used together to support larger sized displays **302** as shown in FIG. **13**B. The mount bracket **310** is attached to a back surface of display **302**. A front surface **304** of the mount bracket **310** acts as a mount plate to secure the mount bracket **310** to the display **302**. Support bracket **312** is preferably mounted or secured to support plate **316**, which in turn is secured to a wall or other support surface such as a post.

FIG. **14** is a perspective view of mount bracket **310** and support bracket **312**. As illustrated in FIG. **14**, mount bracket **310** has a pair of arcuate slots **320** in each of its first and second side walls **306** and **307** which define the range of sliding motion of mount bracket **310** with respect to support bracket **312**. Support bracket **312** preferably includes a first and second sidewall **317** and **318**, respectively, that are held together by fastener **319** that passes through spacer **321**. The support bracket **312** is preferably positioned within the first and second sidewalls **306** and **307** of the mount bracket **310**, such that the first and second sidewalls **317** and **306** and **318** and **307** are positioned next to each other. Each support bracket **312** carries the glides **314** and, preferably includes two glides **314** on each of the first and second sidewalls **317** and **318**. The glides **314** project into arc slots **320** to allow a sliding movement of mount bracket **310** with respect to support bracket **312**. The path of the sliding movement is again defined by the arc of slots **320**.

As in the other embodiments, the arc defined by the slots **320** is a portion of a circle having its center defining a horizontal pivot axis **322**. This virtal pivot axis will pass through a center of gravity of display **302**. As a result, the weight of display **302** remains balanced about pivot axis **322**, regardless of the tilt angle. Maintaining the display **302** in a balanced state allows easy adjustment by a user with minimal force. Once positioned, the display **302** will remain in that position. FIG. **13**A illustrates in phantom the range of tilt angles for the display **302** about pivot axis **322**.

Given the minimal force required to adjust the display **302**, locking mechanism **324** can be incorporated as part of mounting system **300**. Locking mechanism **324** secures display **302** in place once display **302** has been positioned. Locking mechanism **324** secures display **302** by securing mount bracket **310** in place with respect to support bracket **312**. While locking mechanism **324** is not required to maintain display **302** in place, locking mechanism **324** helps avoid the display **302** from being re-positioned due to inadvertent contact. The user does not have to support or hold display **302** in place while tightening the locking mechanism **324**. When multiple mount brackets **310** are used together, the locking mechanism **324** is preferably positioned to face outward rather than toward the middle of the display **302** for easy access by the user to tighten the locking mechanism **324**. A similar type of locking mechanism could also be incorporated with the earlier described mounting systems **10**, **100**.

FIG. **15** shows a broken, exploded view of the mounting system **300** on a side that includes the locking mechanism **324**. FIG. **15** illustrates the interaction of the mount **310**, support bracket **312** and glide **314**. In this embodiment, the glides **314** are separate pieces with preferably two glides **314** on each of the first and second sidewalls **317** and **318**. As with the other glide **18**, glides **314** include an outer projection **326**, inner projection **328** and central flange **330**. Outer projection **326** projects outward through arcuate slot **320**. Inner projections **328** are similar in shape to outer projection **326**, and extend through slots **332** placed in the first and second sidewalls **317** and **318** of support bracket **312**. The size of arcuate slots **332** generally matches the shape of inner projections **328**. Central flanges **330** are captured between opposing sidewalls **306** and **317** of mount bracket **310** and support bracket **312**, respectively. Thus glides **314** are generally held in place with respect to support bracket **312** and mount bracket **310** slides back and forth along the path defined by arc slots **320**.

The use of multiple glides **314** on each side of support bracket **312** could similarly be incorporated into the embodiments described by FIGS. **1**A-**1**F. Alternatively, the two glides **314** could be replaced by ball bearings, or any number of similar objects that can ride within the arc slots **320** defined by the mount bracket **312**.

Support bracket **312** includes a hook **334** at its top and a flange **336** at its bottom. The hook **334** is placed on a rail **338** at the top of the support plate or base **316**. Once the hook **334** is secured on the rail **338**, flange **336** fits beneath rail **340** at the bottom of support plate **316**. Flange **336** preferably includes a threaded through hole **342** that will accept a set screw **343** that can be secured against the bottom rail **340**. Tightening the set screw will help avoid the support bracket **312**, and thus the display **302**, from being pulled out from the support plate **316** or sliding laterally along the rails **338** and **340**. Support bracket **312** and support plate **316** allow the display **302** to be slid or repositioned laterally along the rails **338** and **340** once the hook(s) **334** are placed on the rail **338**. The support plate **316** also includes a series of openings **372** that allow for mounting support plate **316** to a wall. A number of different methods may be employed for mounting the support plate **316** to the wall, including differently shaped and spaced openings.

Mount **310** includes slots **344** that provide flexibility in securing display **302** to mount bracket **310**. Alternate mounting techniques or patterns could also be used to secure the display **302** to the mount bracket **310**.

FIG. **15** further illustrates the locking mechanism **324**. The main parts of the locking mechanism **324** include a square opening **350** through each of the parallel sidewalls **317** and **318** of support bracket **312**, a bolt **352**, and a knob **354**, or other easy to grip device that includes a nut or threaded insert to receive and secure bolt **352**. The square opening **350** is located between the pair of glides **314** found on each of the first and second sidewalls **317** and **318** of the support bracket **312**. The bolt **352** fits into the square opening **350** such that the head **356** of the bolt **352** will not fit through the opening **350**, but a square base **358** of the shank of the bolt **352** located

next to the head will prevent the bolt from turning during the fastening process. The bolt **352** extends through the opening **350** of the support bracket **312**, and through the arc slot **320** of the mount bracket **310**. The knob **354** fits onto and receives the threaded portion **360** of the shank of the bolt **352**. When loose, the locking mechanism **324** allows for easy adjustment of the display **302** which remains balanced about the pivot axis **322**. When tightened, the locking mechanism **324** exerts a force on the mount bracket **310** and support bracket **312** compressing them together and creating enough friction that the display **302** will not be tilted or its position altered by accidental or incidental bumping or jarring.

A similar locking mechanism as described above in the previous embodiment can also be incorporated into the earlier embodiments described in FIGS. **1-12**. An alternative embodiment of a locking mechanism **402** is shown in FIGS. **16**A-**16**C. In FIGS. **16**A-**16**C, the locking mechanism **402** includes a bolt **404** that extends through a mounting systems **400**, which includes mount bracket **406**, support bracket **408** and glides **410**. As in the earlier embodiments, glides **410** are carried by support bracket **408** and project into slots **412**, which defines the path of sliding movement. Thus glides **412** are generally held in place with respect to support bracket **408** and mount bracket **406** slides back and forth along the path defined by arc slots **412**. The bolt **404** preferably extends through the glides **412**, mount bracket **406** and support bracket **408**. A nut **414**, preferably a wing not to simplify turning, is fastened onto threaded shaft **416** of bolt **404**. By tightening wing nut **414** onto bolt **404**, mount bracket **406**, support bracket **408**, and glides **410** are compressed together preventing movement of mount bracket **406** relative to support bracket **408**. Again, locking mechanism **402** is not required to maintain mount bracket **406** in position relative to support bracket **408**, but rather is incorporated to avoid movement due to accidental or inadvertent contact.

Although the Figures show a number of embodiments, others should be mentioned briefly. The mount assembly **14** as described in FIGS. **2**A-**2**F has slots **20**, and support **16** has glides **18**, which slide back and forth in slots **20**. In another embodiment, the mount assembly **14** has glides **18**, and the support assembly **16** is equipped with slots **20** which the glides **18** rock back and forth in. In another embodiment, the glides **18** are replaced with separate pegs or dowels, spaced apart, which fit into the slots **20** and follow the path defined by the arced slots.

As described in FIGS. **7**A-**7**F, the arch **140** is located on the mount assembly **104**. In another embodiment, the arch **140** is held in place by the support assembly **106**. In this embodiment, the yoke **160**, dowels **162**, **164**, and **166**, and wheels **168**, **170**, and **172** are located instead on the mount assembly, so that as the mount is moved through the arc defined by the arch located on the support assembly, the display would be tilted about the pivot axis. In yet another embodiment, the location of the dowels is inverted, so that dowel **164** rides on beveled edges **152**, and dowels **162**, **166**, ride on beveled edges **148**.

What is claimed is:

1. An interface system comprising a flat panel electronic display device and a mounting system, the mounting system comprising:

at least one mount comprising a mounting surface for receiving the flat panel electronic display device;

a support comprising a base and a support bracket, wherein the base presents an upper horizontal rail for carrying the support bracket and a lower horizontal rail, the support bracket including a portion extending under the lower horizontal rail with a latching element operably coupled thereto, the latching element selectively shiftable between a first position wherein a portion of the latching element is disposed behind the lower horizontal rail to inhibit removal of the support bracket from the base, and a second position wherein the latching element is clear of the lower horizontal rail so as to enable removal of the support bracket from the base;

the support and the mount together defining an arcuate sliding connection comprising a guide carried by either the mount or the support, the guide positioned along an arc defining a pivot axis forward of the mounting surface, and a traveler carried by the other of either the mount or the support, the traveler engaged and slidable in the guide, wherein the arcuate sliding connection enables sliding movement of the mount with respect to the support about the pivot axis such that the flat panel electronic display device is tilted about the pivot axis as the mount moves with respect to the support.

2. The interface system of claim **1**, wherein the support bracket includes a hook and the hook attaches to the upper horizontal rail.

3. The interface system of claim **1**, wherein the latching element is a set screw.

4. The interface system of claim **1**, wherein the base further comprises an access aperture for cabling.

5. The interface system of claim **1**, wherein the mounting surface has at least one elongated slot for attaching the interface.

6. The interface system of claim **5**, further comprising a series of apertures linearly aligned with the at least one elongated slot.

7. The interface system of claim **1** further comprising a locking mechanism for securing a tilt angle of the mount with respect to the support.

8. An interface system comprising a flat panel electronic display device and a mounting system, the mounting system comprising:

a mount having a mounting surface confronting a rear surface of the flat panel electronic display device;

a support having a base and a support bracket, wherein the mount is carried by a hook and the hook attaches to the base, the base having a lower edge presenting a bottom rail, the support bracket including structure for selectively engaging the bottom rail and securing the interface with respect to the base;

the mount and the support together defining an arcuate sliding connection comprising:

a guide carried by either the mount or the support, the guide positioned along an arc defining a pivot axis; and

a moveable traveler carried by the other of either the mount or the support and engaged and slidable in the guide, wherein the arcuate sliding connection enables sliding movement of the mount with respect to the support about the pivot axis, wherein the pivot axis has a center which is substantially coincident with a center of gravity of the flat panel electronic display device and about which the interface is tilted as the mount moves with respect to the support.

9. The interface system of claim **8**, wherein the base further comprises an access aperture for cabling.

10. The interface system of claim **8**, wherein the mounting surface has at least one elongated slot for attaching the flat panel electronic display device.

11. The interface system of claim **8** further comprising a locking mechanism for securing a tilt angle of the mount with respect to the support.

12. The interface system of claim 8, wherein the structure for selectively engaging the bottom rail includes a set screw.

13. A mounting system for a flat panel electronic display device, the system comprising a base and a support bracket assembly, the base defining an upper rail and a lower rail, the support bracket assembly operably coupled with the base and presenting a mounting surface for receiving the flat panel electronic display thereon, the support bracket assembly including a first portion carrying a guide structure and a second portion carrying a traveler engaged and slidable in the guide structure so as to define a pivot axis forward of the mounting surface, wherein when the flat panel electronic display device is received on the mounting surface, the flat panel electronic display is selectively tiltable about the pivot axis, the support bracket assembly including a latching element selectively shiftable between a first position wherein the latching element is engaged with the lower rail of the base to inhibit removal of the support bracket assembly from the base, and a second position wherein the latching element is clear of the lower rail of the base so as to enable removal of the support bracket assembly from the base.

14. The mounting system of claim 13, wherein the latching element includes a set screw.

15. The mounting system of claim 13, wherein the base further comprises an access aperture for cabling.

16. The mounting system of claim 13, wherein the mounting surface has at least one elongated slot for attaching the flat panel electronic display device.

17. The mounting system interface system of claim 13, further comprising a locking mechanism for securing a tilt angle of the mount with respect to the support.

18. The mounting system of claim 13, wherein the mounting bracket assembly includes a plurality of guide structures and a plurality of travelers.

19. The interface system of claim 18, wherein each of the plurality of travelers is engaged and slidable in a separate one of the plurality of guide structures.

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